INTERACTIVE NON-FICTION WITH REALITY MEDIA: RHETORICAL AFFORDANCES

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INTERACTIVE NON-FICTION WITH REALITY MEDIA: RHETORICAL AFFORDANCES

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To my father, who taught me math through art.

To my mother, who showed me how to serve others.

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LIST OF SYMBOLS AND ABBREVIATIONS

INF	Interactive Non-fiction
INFW	Interactive Non-fiction Workshop
OR	The Our Reality App
I-Doc	Shorthand for interactive documentary
AR	Augmented Reality
MR	Mixed Reality
VR	Virtual Reality
XR	Extended Reality/ Reality Media

SUMMARY

Interactive non-fiction uses the affordances of emerging media to educate and persuade audiences. Practitioners of the form aim to create knowledge, and then to persuade others to act upon this constructed knowledge. However, the historical propensity of practitioners to use emerging media has resulted in uneven access and literacy. Privileged communities and groups have access to the technology and get to tell stories first. Communities without access to these media are slow to gain literacy and are unable to fully express themselves in an emergent digital culture. Compared to their privileged peers, these groups are unable to use the rhetorical affordances of these emerging media for their ends. This inequity puts them at a distinct disadvantage.

Community workshops for interactive non-fiction can be established to democratize this didactic use of emerging media. These workshops are both pedagogical and a site for social action. They are meant to motivate the participatory development of non-fiction representations of events. Further, the workshop's practice increases the community's literacy in the rhetorical affordances of emerging media. To clarify these same affordances, I developed a framework based on documentary theory. The framework can be used to identify an interactive non-fiction experience's mediated gaze, media inscription technology, and documentary voice. These four rhetorical affordances have been used by practitioners with communities to motivate social action.

To put this theory into practice, I developed a workshop based on historical cases of practitioners using emerging media to create non-fiction with communities as a form of social action. These include the Workers Film and Photo League's film documentaries with labor unions in the 1930s, Augusto Boal's didactic theater with rural peasants in Brazil in the 1970s, and Mark Skwarek's use of augmented reality with the Occupy Movement in 2011. The emerging media chosen for my workshop was mixed reality. The workshop was part of a devised theater class on the campus of the Georgia Institute of Technology. Students gained media literacy through participating in the development of a mobile app that uses mixed reality, and by using that app to create knowledge about

safety on campus through performance tactics. The knowledge they created came from the students' personal stories and documentary material. They used the mixed reality media affordances of a shared feminist gaze, optical scenography, and free-hand interaction to create their non-fiction representations in mixed reality.

Combining the workshop tactics and the app, students were able to create a rhetorically effective and didactic scene. The ability to use physical space as a canvas to create a digital-visual-spatial argument about how an event should be represented was impactful. Particularly effective was the shared feminist gaze that enabled all of the users to see and create in a shared mixed reality. Evaluation of the workshop showed that students believed that they were able to create compelling mixed reality scenes about their community through the app, and that the process could encourage social action.

CHAPTER 1. AN INCLUSIVE APPROACH TO INTERACTIVE NON-FICTION

Throughout history, media have been used to create knowledge and motivate action through the non-fiction form. Often maligned, non-fiction storytelling encompasses experiences that attempt to represent reality [2]. This runs the gamut from textbooks to documentary film and theater. Practitioners attempt to persuade audiences to adopt their perspective through the rhetorical use of media affordances[1] for didactic ends. This can have social and political consequences. For example, the emerging medium of photography was used during the unpopular Crimean War to increase its popularity in England[2]. During and after World War II, the radio played a key role in educating and maintaining a resistance against Nazis and then communism [3]. Filmic documentary has been used time and again by documentarians like Michael Moore and Barbara Kopple to educate others about social ills and motivate action [4]. In theatre, the tradition goes back even farther to include the Greek Old Comedy *Lysistrata*[3] and stretches to the documentary theater

[1] An affordance has been defined by Donald Norman as, "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used." Regarding media, Norman's definition positions the user in a relationship with an artifact. This relationship is one in which the user is enacting their intention through the media. In the case of non-fiction, this intention is to create and access knowledge.

[2] This was the first official use of war photography by a state. The photos were taken by Roger Fenton. None of the photos were of war o conflict.

[3] The political play was written in response to historic events. Its characters abstracted from historical individuals. It has also been suggested to students of rhetoric for its unique use of the agon, a rhetorical term for a formal dispute.

experience, *The Laramie Project*. What connects these seemingly disparate media experiences is that their practitioners relied upon media affordances to make claims about what reality is, and how audiences should respond.

Unfortunately, practitioners have a historical propensity of using emerging media for their representations of reality and this has resulted in uneven access and literacy. There are a number of inherent barriers to using emerging media for non-fiction storytelling[4]. Communities with access to the media are able to gain literacy faster than their less privileged peers. They learn how to use the affordances of the media to create non-fiction experiences that serve their interests. The privileged will use the affordances of the media for rhetorical and didactic purposes. For example, John Grierson, the father of British and Canadian documentary, used the emerging media of film to enforce the dominant discourse of the British empire [5].

Communities that do not have access to the emerging media gain literacy slower and cannot use the media's rhetorical affordances for telling their stories. This inequity results in a community's disadvantaged representation in digital culture. Increasing

[4] For example, take Augmented Reality (AR) storytelling. First, there are financial costs. To develop AR, a storyteller needs access to a high-powered desktop, a mobile phone released after 2015, and a developer's license. Second, a storyteller must be literate in both coding and the network of resources available to them. A lone and entrepreneurial storyteller needs to be literate in contemporary coding languages, design processes, development procedures, user experience, interface design, mobile app deployment and distribution, and debugging. They also need to be aware of the various online information resources, networks, and groups associated with AR development. These structural issues accompany any emerging digital media form.

communities' access to an emerging medium can grow their literacy in its rhetorical affordances for non-fiction storytelling. This effort can lead to a more democratized use of emerging media that results in pluralist representations of reality. At the very least, the emerging media affordances can be used rhetorically by communities to develop stories that represent themselves and spur action. To achieve this process, I created a framework, mobile app, and workshop based on documentary theory and historical case studies of similar workshops.

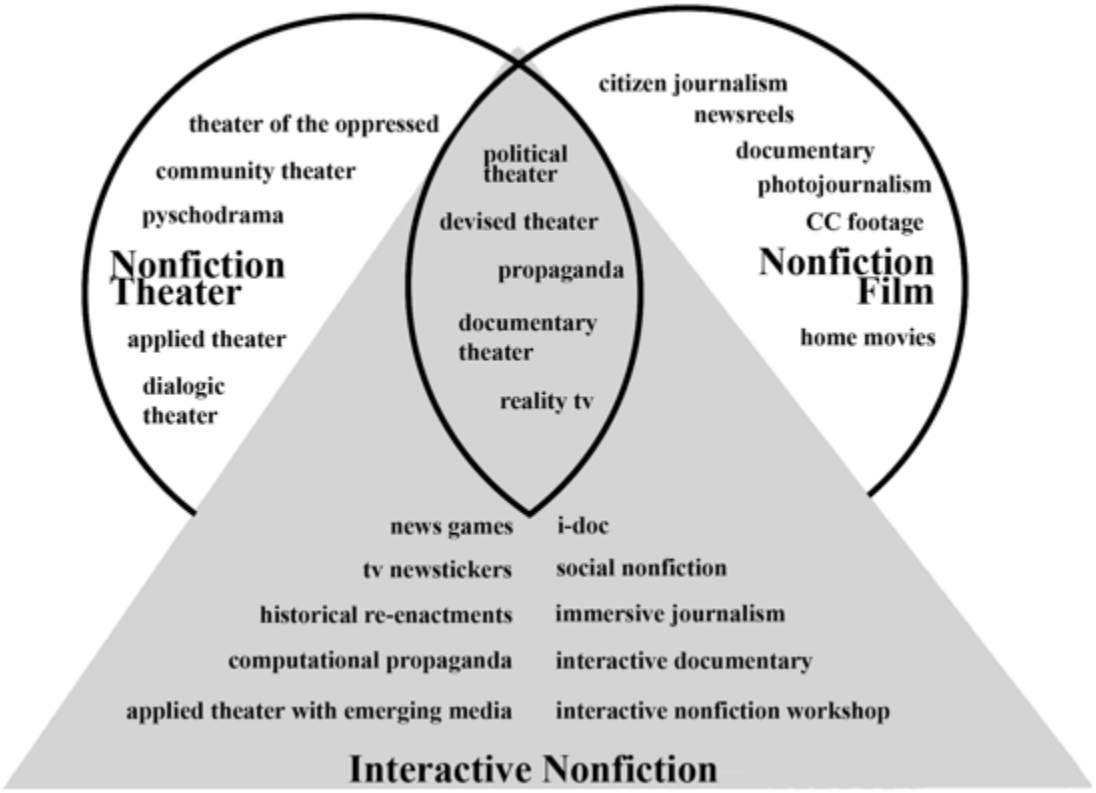

Figure 1 A figure delineating the two media informing rhetorical affordances for interactive non-fiction.

1.1 Defining Interactive Non-fiction

As non-fiction storytellers have taken advantage of emerging media, they have utilized their affordances for rhetorical and didactic purposes. This is true in particular for the remediation of filmic documentary into interactive and computational forms. However, this process has not resulted in a consistent terminology. There are a number of terms for interactive documentary, including immersive journalism, living documentaries, i-doc, expanded documentary, and collab docs. Instead of these, I utilize Interactive Non-fiction (INF) from MIT's Open Doc Lab [2]. This broad term connects the process of representing reality through emerging media to a history of multimodal audience interactions. In Figure 1, I outline the space from which these various forms of audience interaction are derived.

Examples of non-fiction theater are on the left. These experiences rely on audience participation and physical evidence. They are designed to elicit audience interaction in the creation or development of the story. For example, in Jacob Moreno's psychodrama, the audience is made up of trained counselors who roleplay an experience from the patient-protagonist's past [6]. The participation of audiences in Augusto Boal's Invisible Theater involved staged social critiques in public places to encourage interaction [7].

Non-fiction film is on the right side of Figure 1. These films rely on their persuasive and educational elements through visual rhetoric and grammars. In crowdsourced documentaries, such as YouTube's *Life in a Day*[5], the interaction occurs through the

[5] A crowdsourced documentary that was comprised of 80,000 individual clips from a single day—July 24, 2010. It was considered a 24-hour Coca-Cola commercial.

individual filmmakers' pieces and the editorial direction of the film's producer, Ridley Scott. How Scott arranged the film told a particularly cheery story about that day. Akin to theater, in Cinéma vérité, the filmmaker might go as far as to provoke an interaction through the construction of a scene. In 1968, filmmakers in the Newsreel Collective shot a 50-minute documentary of the Columbia University student protests. The collective used their cameras as weapons[6] and then kept on filming [5].

In the center, where non-fiction theater and film overlap, are media experiences that rely on both audience participation and media artifacts. Erwin Piscator's political theater and its use of non-fiction material in the form of state documents as evidence is one example. A completely different form would be reality television, which stages a performance and uses filmic grammars to create an impression of reality. When produced at the behest of the state, these non-fiction experiences may appear to be propaganda. Dziga Vertov traveled throughout the young Soviet Union on agit-prop trains projecting his newsreels on the sides of boxcars for rural peasants [8]. The entire spectacle was a performance to communicate the technological and ideological superiority of communism. This combination of filmic media and performance can produce a potent rhetorical affect.

[6] According to Roz Payne, a member of the collective, "Our cameras were used as weapons as well as recording the events."

The same process is now being used by storytellers using AR and VR at festivals as part of their INF experiences[7].

These digital experiences remediate the previous nonfiction filmic and performance forms and include interactivity to develop new ways of creating knowledge. MIT Open Doc Lab scholar Arnau Gifreu-Castells defines Interactive Non-fiction [2],

> Interactive non-fiction works create a new logic for the representation of reality. The emphasis of this new logic is placed on the relationship that evolves between the text and the user, rather than on how the author constructs a specific discourse on reality for traditional viewers. This new discourse is constructed using new methods – navigation and interaction– rather than modes of representation.

Castells goes on to define interaction as a necessity for the form and navigation as a way of moving through the story. For example, in *Welcome to Pine Point,* the user navigates the INF experience by clicking a hyperlink that takes them to the next passage. In *Terminal 3*, a user navigates the spatial MR story by verbalizing (interaction) various prompts.

However, Castells does not look to performance or nonfiction theater for his definition. He relies too heavily upon filmic and computational affordances. This medium specificity does not take into account the performative approaches to representing reality.

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[7] At the 2018 Tribeca Film Festival, *Terminal 3*, a mixed reality INF introduced participants to the real-life representations of the digitized people they had just interacted with. When Nonny de la Peña showed *Out of Exile: Daniel's Story* at Sundance 2017, the real-life Daniel was also present to meet with participants.

When these approaches are included, the picture of how an audience member performs, alone or with others through a medium to create knowledge[8], is clarified. This social context and relationship to an INF experience is critical[9]. A user's political, ethical, social, and historical understanding of the material is perhaps the most influential part of what motivates them to act [9]. Further, these factors influence how and what kind of knowledge gets created. A definition of INF should encompass the social aspect of these didactic and rhetorical experiences. A participant in an INF experience does not learn in isolation and certainly cannot act, successfully, without the help of others. My response to Gifreu-Castells resituates the participant as the performative meaning maker and co-creator of knowledge. I define INF as *mediated experiences made with the intention of educating and persuading an audience to act by representing, documenting and constructing reality through the mechanisms of conventional documentaries, performance tactics, and audience interactions that are rhetorical and didactic.*

The response positions the user as active in a discourse on the representation of reality. It recognizes that the user will be influenced by the filmic grammars of traditional documentaries, but also the tactics of performance and how interactions are designed. The goals of creating knowledge and persuasion are the same, but my proposed definition

[8] My use of the phrase, "create knowledge" is meant to encompass the process by which opinions become fixed and accepted as information and data. I do not believe that this knowledge is objective and it most certainly can be ideological.

[9] Augusto Boal and Erwin Piscator relied on audience engagement and participatory performance tactics to engage the social context of an INF experience.

recognizes that multiple media affordances can be marshalled by a practitioner to achieve them. This interdisciplinarity materializes in the affordances of reality media for INF experiences.

1.2 Defining Reality Media

Reality media refers to augmented, mixed, and virtual reality. It encompasses systems that implicitly make a claim on representing reality in their name. According to Jay Bolter and his colleagues, reality media "place themselves between us and our perception of the everyday world, and in this sense, they redefine reality itself." [10] Their affordances are used to construct representations of reality in different ways. Virtual reality redefines reality as a computer simulation that immerses the user. For augmented and mixed reality, the user is behind the device and using its gaze to uncover, create, and interact with a blended layer of digital and physical information [10]. Augmented and virtual reality are just two opposite examples for a range of reality media. As these media are emerging, the term reality media[10] neatly encompasses their actual and rhetorical impact on users' perception.[11]

[10] A new term, Extended Reality (XR), has recently surfaced to encompass all of the reality media. I use the term XR throughout the dissertation as synonym for reality media.

[11] Chris Milk was particularly adept at using the novelty of the 360-degree video to elevate its rhetorical affordances above those of other media at the 2016 World Economic Forum in Davos.

Critically, my perspective on reality media experiences is that they are an interdisciplinary mixture of performance practices[12] and documentary theory. Reality media are continually asking the user to suspend their disbelief and buy into the afforded digital experience. Baked into the media is a question traditional to documentary, "Isn't this so? Isn't this the way it really is?" [11] For example, when the AR app PhillyHistory super-imposes historical images atop buildings, its archivists are asking users to accept the image as an accurate historical representation of the current structure.[13] In INF, users engage in a discourse on the representation of reality through interaction and performance, both through and with, a reality media device. This process is rhetorical and didactic. It happens both in physical reality and virtuality. The myriad affordances of reality media direct the discourse through these domains. To understand how INF with reality media can achieve the goal of creating knowledge and directing action, the effects of the media affordances needs to be clarified.

1.3 Problematic Claims about Interactive Non-fiction with Reality Media

Interactive non-fiction experiences with reality media are often critiqued for the claims they make, the way they represent reality, and the rhetoric that surrounds their use. How and which affordances are being used rhetorically to create knowledge and direct

[12] This particular approach aligns with Brenda Laurel's perspective as human-computer interaction as a performance.
[13] The app uses 500 photos of historical buildings from the Philadelphia Photo Library and geo-locates them atop the contemporary structure.

action required clarification. This is a necessary because evangelists from industry and entertainment hype reality media as a potential panacea for all of society's communication ills.

A contemporary example, Chris Milk, gained national attention with his TED talk, "How virtual reality can create the ultimate empathy machine" [12]. In his compelling introduction of VR and 360 filmmaking to a mainstream audience, he claims,

> So, when you're inside of the headset […] You'll notice you see full 360 degrees, in all directions. And when you're sitting there in her room, watching [child refugee Sidra], you're not watching it through a television screen, you're not watching it through a window, you're sitting there with her. When you look down, you're sitting on the same ground that she's sitting on. And because of that, you feel her humanity in a deeper way. You empathize with her in a deeper way.

Milk implies that the affordances of reality media are more effective at creating persuasive representations of reality. He further claims that these more realistic representations are more effective than filmic non-fiction at encouraging an audience to feel and understand a subject. The goal is laudable, to have compassion for refugees, but the claim is problematic. An audience does not actually sit with Milk's subject, a Syrian refugee named Sidra, and we do not actually interact with her.

The Displaced, another Milk experience, is a 360° VR INF experience that affords no other interaction except the movement of the viewer's head to change point of view. When the images of the experience and the turning of one's head align, a dramatic effect

is achieved. For example, in Figure 2, there is a moment in the experience when the viewer is positioned on the edge of field in which a relief aid helicopter is dropping large sacks of food. Chuol, a displaced child close to the user's position, struggles to lift one of the sacks. The moment is meant to trigger a reflexive emotional response. This includes the visceral impulse to reach into the virtual world and literally lend a hand. The experience works through a momentary framing, a spark connection when Chuol looks directly at the camera. Users yearn to interact, but the refugee across from them remains closed to questions and help. The immediacy of this moment marks a contrast with the distancing techniques of voice over or the panning of a setting. Still, the inability to reach out and help means that while the user may be immersed in the scene, they are not truly present and cannot act.

Figure 2 South Sudanese refugees retrieve aid packages that have been airdropped in *The Displaced*

Chris Milk's early experiences highlight the problematic claims made by producers of INF with emerging media. The issues are theoretical and applied. Theoretically, the manner in which we understand how these INF experiences persuade audiences through their representations of reality is muddled by the rhetoric of industry and entertainment

professionals. Emerging media provide new affordances. They do not solve the sticky issues of representation in non-fiction[14].

Rather, his rhetoric exacerbates the misunderstanding. Emerging media do not provide new affordances for capturing an objective reality. Their affordances are used by practitioners to create subjective representations. The veracity of these representations can always be critiqued. Instead of evaluating the success of non-fiction experiences with emerging media on the aesthetic value of their new affordances, it would be more valuable to look at their rhetorical affect. By this, I mean that it is more important to ascertain how users respond and act through the affordances to create knowledge with one another and through the non-fiction experience. Therefore, an INF experience can be assessed by the success of its rhetoric, enabled by media affordances, and users' response. The process of how an INF achieves this rhetoric depends on the emerging media affordances used in the experience.

The applied issues relate to how developers of INF experiences create their representations of reality. The filmic documentary approach espoused by Chris Milk and others posits that through visual rhetoric an audience will be persuaded to act. This is no

[14] These include the influence of the storyteller upon the subject, the subject's relation to the camera, the subject's relation to the audience, the device's affordances for the myth of scientific inscription, the colonization and exploitation of marginalized communities for stories, the influence of bad actors, and misinformation. In the case of INF and computational forms, the design of the interface can be rhetorical and procedural rhetoric may constrain users from critiquing or engaging with non-fiction material in a way that honors their agency.

different than the relationship a viewer has with existing forms of filmic documentary. In 2019, viewers can watch any number of film documentaries on TV and online that use a similar grammar. Further, the limited amount of interaction in Milk's early 360-degree VR experiences ignores that users can interact in a deeper way.

Taken alone, the ability to look around in 360-degrees does not amount to a rhetorically powerful interaction. On the other hand, having the capacity to be embodied in the scene or to have dramatic agency has a strong rhetorical affect. Allowing participants or subjects to create their own representations of reality through the reality media's affordance for spatial interaction is even more affective. It makes room for a user to critique, question, or express themselves with and through the documentary material. Synthesizing the performance tactics of non-fiction theater for interaction with the visual grammars and rhetoric of filmic non-fiction provides a wealth of affordances for storytellers to create believable representations of reality[15]. Practitioners can use these affordances to motivate an audience to act.

[15] INF experiences are still bound by the procedural rhetoric of their design and development. However, a user may discover how to play against this rhetoric in order to create a representation of reality that runs counter to the intentions of the designers. This might happen by playing a game or engaging with an experience in a way that the storyteller did not take into account. For example, in the VR INF *HERO*, a user may choose not to rescue anyone in the experience's setting, a bombed-out Aleppo, Syria. Alternatively, a user may break out of computation. This may mean a user puts the media artifact off to the side to perform or engage in a rhetorical discourse with their peers about the subject. This, for example, happened with Mark Skwarek's work with the Occupy Movement to document their protests in AR. He would often have to put down his phone or tablet and solicit passerby to engage with his experience.

1.4 The Rhetorical Affordances Framework

In order to help communities learn how to use the rhetorical affordances of emerging media for INF, I developed a framework for analyzing experiences. Further, this framework needed to be a tool to arrange the rhetorical affordances in a way that would motivate social action. For this to occur, participants have to relate to the non-fiction material, and connect with one another through that material, to understand their reality. To develop the practical aspect of this framework, I have relied upon the scholarship of documentary theorist Bill Nichols. Nichols has been writing on the documentary form since 1976. To provide a theoretical framework for the successful motivation of social action in an INF experience, I rely on rhetorician Kenneth Burke. Burke has explicitly written on how audiences can relate with one another through a media artifact to create social action.

1.4.1 *Bill Nichols' Documentary Framework*

The framework was modeled after the scholarship of documentary academic Bill Nichols. Specifically, in a chapter in his book *Representing Reality*, Nichols discusses axiographic space [11]. He coined the term to describe the space between the camera and storyteller and the subject they are filming. Nichols discusses it as a space where the visuals representing reality are bound up in the ethical and ideological perspective of the documentarian [13]. These visual representations do not represent reality but are instead a media actuality. The representations are neither true nor false but constructed via the storyteller's perspective on the subject. This media actuality is accessed via a mediated gaze that facilitates the embedding of values. These embedded values within visuals are

rhetorical: they are meant to persuade an audience to adopt the storyteller's perspective. As Nichols states, "The image provides evidence not only on behalf of an argument but also gives evidence of the politics and ethics of its maker" [11].

In filmic documentary, the image carries the ethical impression of its creator and this is projected onto the screen for the audience. This is due to non-fiction film's closed nature. When an audience engages in a discourse with the text, when the non-fiction is interactive, this ethical stance becomes rhetorical. A user must negotiate the ethics embedded in the text with their own morals. The ethics of the storyteller and the user are put into action as they work with one another (or through a platform) to create a representation of reality. How the storyteller uses the affordances of a particular emerging medium, as well as expressive techniques and stylistic devices to this end, is rhetorical [2] .

Nichols then provides the following rhetorical elements inherent to the documentary form: the gaze, a recording technology, and expressive techniques. For INF, expressive techniques are the way users interact with the constructed representation. The concept of the Gaze can then be broken down into both live and mediated gazing. The latter requires the optics of some device but both comment upon power relations and how they are used to frame the subject. Modes of expressive techniques and interactions are related to the concept of the Documentary Voice. The Documentary Voice is how the non-fiction experience's argument is constructed through media grammars. For example, Morgan Freeman's voiceover in *March of the Penguins* (2005) is an authorial documentary voice. His narration booms authoritatively over the images of the penguins. The documentary voice has subsections for Modes of Engagement and Techniques for Engagement. The

Modes of Engagement are how a documentary voice is directed. For example, whether it is authorial like Freeman's in *March of the Penguins*. The Techniques for Engagement are the actual methods and tactics used such as voiceovers and editing. These documentary aspects are broken down in Figure 3 below. The only section not addressed are the affordances for identification. These are the affordances that allow users to relate with one another through the media experience. The term identification comes from Kenneth Burke.

Affordances for Identification		**Gaze**		**Documentary Voice**	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**

Figure 3 The Rhetorical Affordances Framework (RAF)

1.4.2 *Kenneth Burke's Rhetoric of Identification*

Kenneth Burke revolutionized rhetoric in the 1950s by critiquing Aristotelian persuasion [14]. He argued that Aristotle's definition did not take the social context of the audience into account. An orator does not seek to persuade a single person but an entire crowd to act through their representation of an event. The members of the audience have to agree with one another that the orator's representation is valid if they are to act. For persuasion to occur, in the Aristotelian sense, the audience has to identify with the speaker and the speaker's representation. As Burke said, "You persuade a man only insofar as you can talk his language […] identifying your ways with his" [14]. In this sense, every appeal in INF, "is to invite the audience member to identify with the ideas, character, or purposes of the rhetor/author, and to participate in the drama she is creating" [15]. For example, in

the VR INF *Where Thoughts Go*, users have submitted anonymous stories from their lives that float around as white orbs. Other users can pick up these orbs and listen to the story. If they relate to the story, then Burke would say they identify with the other users through the media representation[16].

Non-fiction is an invitation to agree, to identify with what is being represented as reality through a media form. Filmic documentary and documentary theater create these appeals to identify in different ways. In Steven Schoen's dissertation on Kenneth Burke and filmic documentary, he writes,

> In [Spike] Lee's Four Little Girls (1997), we understand a father's testimony about his daughter in an identification with his pain and anguish. And […] by the design of the text to participate in Lee's own revulsion at the racism of a businessman, and share in Lee's horror at the images of black men being hanged by Klansmen. None of these scripts, images, or scenes are in the text by accident; they all act on us, and identification as a concept of rhetoric says that they work by getting us to respond

[16] Burke provides the following formula for understanding the rhetoric of identification. "A is not identical with his colleague, B. But insofar as their interests are joined, A is *identified* with B. Or he may *identify* himself with B even when their interests are not joined, if he assumes that they are, or is persuaded to believe so." Taking *Where Thoughts Go*, user 1 who tells the story is not identical to user 2 who hears the story. But insofar as the characteristics of the story represent their interests, user 2 is identified with user 1. Or, user 2 may believe he relates with user 1 even when their interests are not aligned if persuaded to by the representation.

> with the basic motivations as they are constructed, depicted, and played out in the drama. [15]

Each of the visuals described above is strung together through a filmic grammar to form the visual rhetoric of the piece. If this rhetoric is successful, an audience will identify with Lee's argument.

In a classroom run by the Workers League of Theaters (WLT), working students discovered that they could not identify with any of the stories on the theater stages of the 1920s [16]. The students worked together to develop a devised performance with which they could identify.

> The women broke into small groups to prepare scenes from their own lives, and then performed them for the group. The subjects included a picket line; an unemployed girl in a rooming house; a day in a union shop; an unexpected guest for dinner when there is not enough food; and a scene in a subway. The students began to see their own lives as filled with dramatic moments and situations. [16]

These identifiable performances were critical to directing workers to consider their life full of dramatic possibility. The WLT believed that if workers could understand dramatic conflict, that they could act against the real oppression in their lives. In the language of Burke, the capacity of the workers to identify with one another through the representation of their daily conflict could direct them to derive a solution and then act.

When members of an audience identify with a representation's argument, they might be compelled to act. For example, Al Gore's *An Inconvenient Truth* galvanized a response to global warming. Kenneth Burke refers to this "acting togetherness" in response to a media representation as *consubstantiation.* When individual audience members act together because they identify with the same, "sensations, concepts, images, ideas, attitudes", they are consubstantial [17]. It is an "acting-togetherness" that is a rhetorical effect of viewers identifying with one another and a perspective on reality.

> In being identified with B, A is 'substantially one' with a person other than himself. Yet at the same time he remains unique, an individual locus of motives. Thus he is both joined and separate, at once a distinct substance and *consubstantial* with another.

The documentary *Super Size Me* (2004) by Morgan Spurlock is a good example of a non-fiction film that results in consubstantial action. The documentary was about consuming McDonald's for every meal a day for a month. Many people identified with Spurlock's argument that McDonald's options in the late-90s were unhealthy. The film was first shown in January 2004 at the Sundance Film Festival and won the Grand Jury Prize for directing. The film's message received a swell of support. In the same month, it was nominated for an Academy Award. In March, facing mounting pressure, McDonald's removed the

supersized options from their menu[17]. Enough people identified with Spurlock's argument that their reactions to the documentary's argument consubstantiated into a social response. Achieving this form of consubstantial action is a goal for INF with emerging media.

Lastly, using Burke's identification helps to avoid the problematic concepts of authenticity, truth, and authority regarding INF representations. In INF, the factual validity of the story is subservient to the rhetoric of its representation. Even the formal aesthetic elements are used to serve the rhetorical goals of these INF experiences. The Burkean approach avoids the false equivocation of a representation of reality with its actual and real accuracy in lived reality. What matters is that an audience of users identifies with this representation; that this representation motivates them to act with one another in response. Whether or not the representation is accurate, objectively, is less important. Recognizing that this assessment is made by users situates them at the center of this meaning-making process. It recognizes that the construction of an INF experience is rhetorical and is an appeal to users, asking them to identify with the represented reality and then act. Different emerging media affordances serve this process by enabling new logics for engaging and representing reality.

1.5 The Rhetorical Affordances of Reality Media

[17] McDonald's claims that they were always planning to remove the supersize options and that the timing was purely coincidental. [293]

In Steven Schoen's dissertation on Burke and documentary, he refers to the form's filmic representation as a scene that, "interacts at key moments and particular ways to locate the events of films in the 'real world,' not just as evidence that something is real, but also as meaningful for particular arguments and rhetorical moves." [15] This interaction has generally been the purview of the documentarian. It is how they exercise their documentary voice. For INF, these interactions occur through users and audiences in relation to a media artifact. As co-creators of knowledge, they identify representations as real and use them, instrumentally, as part of their rhetoric. Reality media enable these users the ability to give spatial form to these representations, as 3D objects and more, but also to be embodied and present within their co-constructed representations of reality.

This representation of reality has been considered a malleable and creative space for creating knowledge in theater and documentary. In theater, this representation occurs within the borders of the stage and for documentary, the edges of the frame. Dramaturg Augusto Boal refers to his stage as a gnostic space [18]. It was a space where the mediated news and the stories of his audience could be interrogated simultaneously. The space enabled his audience to critique and change what they were seeing in mainstream media. Boal's stage is a place where reality is plastic and mutable. Changing and working within the space, participants create knowledge about what they represent on stage. As Boal states, "Theater is a form of knowledge; it should be a means of transforming society." For John Grierson, his films were the, "creative treatment of actuality" made through filmic grammars to inform a malleable representation of reality [5]. Grierson sought to shape reality and once said, "I look on cinema as a pulpit, and use it as a propagandist."

Both Grierson and Boal meddle in the given facts of lived reality within the confines of their stage and filmic space. For reality media, this space is constrained to the edges of a device's screen. It is a remediation of Boal's gnostic stage and Grierson's media actuality. It is a fecund, malleable space somewhere between media affordances, lived reality, and mediated representation. For reality media, users interact with the INF to compose this representation out of the physical and digital worlds simultaneously. Both the representation and the space in which it is constructed are rhetorical.

The rhetorical effect is achieved through the user's interactions with one another through and with an INF media actuality. Their engagement and interactions result in a representation of reality that, through the affordances of reality media, can be embodied. This rhetorical embodiment enforces identification and occurs both through and outside a media's interface. The tactics of filmic non-fiction and non-fiction theater can be used to enable the user the ability to engage with, create, and critique representations of reality. The individual rhetorical affordances of non-fiction theater and film can be employed by users to create an identifiable representation with reality media. The capacity of reality media to be situated between a user and their perception of reality facilitate this process by utilizing both physical reality that the representations of reality as evidence simultaneously.

Reality media's affordance for paralleling a representation of reality with physical reality is its most rhetorically impactful. Augmented reality can provide immediate annotations on reality that can redefine a physical location as a play space, and virtual reality can enable a user to roleplay through a historical event using their own body. The media's exploitation of the physical for its representations of reality aids in identification

and is rhetorical. The representation's relationship to physical reality is indexical because of its immediacy[18]. When a user wears the Leap Motion MR headset North Star, their hands and fingers are mapped to an AR skeleton that responds to their movement in real time. The AR hand and fingers become indexical to the user's hand. In *Gitmo,* a VR documentary, de la Peña places the user into the body of a male prisoner. He is bound in a vulnerable position within a cell [19]. De la Peña forced her users into the same position. At that moment, the prisoner's represented body and the user's physical body become identifiable with one another in an indexical relationship. These moments have a strong rhetorical affect. These rhetorical affordances, and others, can also be taught to communities that do not have access to these emerging media.

1.6 Case Study: Reality Media and an Interactive Non-fiction Workshop

In an effort to test my framework and its theoretical basis, they were both put into practice through the design of a mobile app called "Our Reality" (OR) that was developed for use in a community workshop. To increase how identifiable the representations could be, a participatory storytelling process based on historical examples was adopted. The process of creating with the OR app in an interactive non-fiction workshop (INFW) parallels the non-fiction performance activities of Augusto Boal. The workshops were

[18] "Immediacy (or transparent immediacy): A style of visual representation whose goal is to make the viewer forget the presence of the medium (canvas, photographic film, cinema, and so on) and believe that he is in the presence of the object of representation." [145]

controlled experiments to ascertain how individuals use the media to make identifiable representations of reality. Participants used the rhetorical affordances of the OR app to co-create representations of their shared reality with one another and documentary material. This process was studied to answer the following research questions.

1. How did participants utilize the practice and the mobile app to come to an agreed upon AR representation of the documentary material?
2. What made a participant's AR representation of the documentary material identifiable to others in the group?
3. How did AR contribute to the identification to create knowledge about the constructed scene?
4. Why were the AR and Interactive Non-fiction workshops considered a compelling experience for motivating social action (consubstantial)?

The answers to these questions suggest how INF can be used to create experiences that are identifiable. More importantly though, the questions provide insight into whether an INFW can be a space for increasing literacy and for encouraging social action.

1.7 The Structure of this Dissertation

In an effort to clarify how workshops for INF with emerging media could increase literacy and be a site for social action, this dissertation is divided into seven chapters. The next chapter provides a deeper and more thorough explanation of how the documentary framework posited by Bill Nichols can be used to uncover INF's affordances for identification. In an effort to connect documentary theater and filmic documentary, a

hundred-year history of examples is presented in chapter 3. The history spans four separate phases of INF examples and the social context in which they were deployed. In chapter 4, I connect the participatory tactics of documentary theater to specific affordances of reality media to establish rhetorical interaction paradigms that comprise the documentary voice. The chapter relies on the tactics of Paulo Freire, Augusto Boal, and Jacob Moreno. Each of these practitioners utilized documentary material and media as part of their applied practices. Accordingly, their tactics both through reality media and outside of it support the participatory storytelling process in an INFW.

Regarding the applied section of this work, the structure of the workshops and the design of the mobile app for use within the workshop are both covered in chapter 5. The workshop and app are then evaluated in Chapter 6, and I explain how the workshop, framework, and affordances of the mobile app work together to successfully create identifiable INF and could motivate social action. These are listed below in the same order as the research questions on the previous page.

- Participants utilized documentary material from a public arts campaign as inspiration for the non-fiction representations. First, the use of a shared mediated gaze that enabled users to create representations of reality in AR that exploited or utilized physical reality were rhetorically effective Second, the more active a participant was in placing 3D models of content into the representation, the more identifiable the scene would be to others. Third, the devising aspect of the performance tactics was more effective than the roleplay sections when it came to the AR representations.

- Generally, an AR representation of reality was assumed by a participant to be identifiable to others in the group if it was reflective of the community culture and appeared to be rooted in the physical domain.
- AR contributed to the process of identification through the use of a shared mediated gaze that was able to give spatial form to representations of non-visual material. Participants felt they created knowledge by modifying a representation's materialization and presence in a shared digital and physical space.
- Participants who were active in the creation of their scene, worked well with others to do so, and felt like their scene was reflective of the non-fiction material also believed that their AR representation could lead to consubstantial action. These participants all believed that the peers in their group would identify with the representation and feel similarly.

Chapter 7 includes a final discussion on the use of the Rhetorical Affordances Framework (RAF) as a pedagogical and critical tool. Further, I provide practical suggestions regarding the duration of the workshop, number of participants, and alternative workshop structures.

CHAPTER 2. THE RHETORICAL AFFORDANCES FRAMEWORK

In order to increase literacy in the rhetorical affordances of emerging media a framework needed to be developed. To develop the framework, I rely on the documentary theory of Bill Nichols who has been studying the form since the 1980s. Documentarians have a long history of making claims through their representations of reality. A documentarian structures their visual argument about how an audience should perceive reality by perpetually asking, "Isn't this how it really is? Isn't this reality?" [11]. The proposition to identify with the representation is created through media affordances, a gaze, and the documentary voice.

2.1 The Rhetorical Affordances

In Bill Nichols' seminal text on documentary theory, *Representing Reality*, he outlines how the form constructs arguments through the "implementation of values in the configuration of space, in the constitution of a gaze, and in the relation of the observer to the observed" [11]. The form necessitates a media technology capable of the "detached and subjective recording," framing and conveying, of the multifaceted nature of the world [11]. Each of these factors—the gaze, and the relationship between the observer and subject are part of the Rhetorical Affordances Framework (RAF). The optics and hardware of an emerging media device alter the "detached and subjective recording" and interactions used to create knowledge in and through an INF experience. This shifts with

each new generation of media. For film documentarians, this was the physics of the camera's optics; for first-generation IN, it's the affordances of hypertext and hypermediation; for Mark Skwarek, it's the affordances of computer vision for Augmented Reality (AR); and for Nonny de la Peña, it's the affordances of

Figure 4 A still of *Hunger in Los Angeles* by Nonny de la Penña. A participant interacts as an active witness in the scene, freely moving around the virtual environment.

photogrammetry for immersive Virtual Reality (VR) [19].

This evolution of media elevates interactivity in the NF form over time. Film is far less interactive than an embodied VR experience, where the user moves about the scene as an active witness. Take for example, Nonny de la Peña's *Hunger in Los Angeles* in Figure 4 The media affordances of VR enable the user to move through and look around the environment. As the filmic documentary form has evolved, interactivity increased through dialogues between documentarians and their subjects. Moreover, the

use of participatory filmmaking tactics increased interactivity as NF matured. Both tactics for audience and subject participation have found a place in the emerging forms of INF. For NF experiences with little to no interactivity, to those that are completely interactive, the factors of the gaze, and documentary voice inform how an INF creates knowledge through rhetorical affordances. Values are embedded through each of these affordances by INF practitioners.

2.1.1 *Embedding Values in Non-fiction*

Robert Flaherty and John Grierson are considered the forefathers of the western documentary. They had radically different ideological viewpoints that resulted in very different kinds of films. Flaherty tended toward the ethnographic, and he showed reverence for his subjects. Grierson often worked in partnership with the state and social elites in a nationalistic attempt to inform the public and sway their opinion. In this section, these documentarians' methods will be contrasted to clarify how documentarian values become embedded in documentary experiences to achieve identification and consubstantiality.

2.1.1.1 Robert Flaherty, the Artist and Documentarian

Flaherty was an artist. He was already a successful still photographer with a gallery in Toronto when he began documentary [5]. He was a cameraman who wanted to paint with his images and compose scenes as a testament to his subjects. It was entirely a personal, participatory, and aesthetic experience. Speaking to the instrumentality of the documentary gaze and his work,

> All art is a kind of exploring. To discover and reveal is the way every artist sets about his business. The explorers, the discoverers, are the transformers of the world. […] Above all, they are the artists, the poet, and the seer, who out of the crucible of new fact and new idea bring new life, new power, new motive, and a deep refreshment. They discover for us the new image.

For Flaherty, this discovery was as much an epiphany as it was a construction of a representation that utilized visual rhetoric. Generally, his approach was considered ethnographic, but with a focus on visual aesthetics. For example, in Figure 6 from *Moana* (1926), a young Samoan boy scales an impossibly tall palm tree to retrieve coconuts. In an impressive moment of visual rhetoric, the sequence of shots makes the tree look gigantic. Flaherty shoots the base of the tree, the mid-section, and then provides a final shot of the boy in the palm fronds. This sequence of ascension is repeated in the reverse when the coconuts are all collected. The height he has climbed appears dizzying, near impossible.

Figure 5 Stills from Robert Flaherty's *Moana* showcasing his aesthetic approach.

For Flaherty, the documentary form was more about the art of representation than the presentation of objective facts. He wanted to show audiences people he claimed to admire

and love. He was not an accurate historian, but an idealist who sought to present his subjects as resplendent for box office profits.

Flaherty was constructing the documentary form by pursuing and filming those about whom he felt passionate. While he hoped to present to viewers what he considered the innate dignity of humankind and the beauty of its rituals, a contemporary understanding recognizes his imperial and colonial gaze [24]. His subjects were often people in far-flung reaches of the globe. He hoped to present to viewers what he considered the innate dignity of humankind and the beauty of its rituals. However, in *Moana,* a documentary about Samoan villagers, he revived a dead tattooing ritual to mark manhood. He carried out this colonial endeavor to provide a dramatic structure for the narrative of his documentary [5].

This production was exploitative, but supporters claim he never presented them as "native color" or trivialized their existence.

> Flaherty gives his characters [room] to simply be human. Far from regarding them as impersonal insects under a microscope, he fills the film with scenes of them laughing and playing, more often than not of Moana and Fa'angase flirting and courting. One of the first scenes sees Moana chop a giant vine and drain the fresh water within into Fa'angase's giggling mouth. These are not Hollywood savages or anthropological specimens: they are actual human beings with hopes and dreams and loves and desires.

Flaherty's treatment of his subjects was groundbreaking, but it does not make it any less exploitative by contemporary standards. Flaherty used the imperial and colonial gaze as an

artist to construct and embed values that would resonate with audiences back home. Scenes of Samoans laughing, crying, dancing, and flirting were identifiable to western audiences. It certainly resonated with Flaherty's audience at the box office [5].

2.1.1.2 John Grierson's Documentaries for the Empire

Though the first to use the camera in an ethnographic manner is credited to Flaherty, John Grierson formalized the documentary form in his seminal essay, *The First Principles of Documentary* written in 1932 [32]. In fact, he was the first to use the word to describe Flaherty's *Moana* [33]. Where Flaherty sought art and constructed wisdom in the out-of-reach corners of the globe, Grierson documented socio-economic power in the politics of urban centers of England and Canada.

He worked at the behest of the state, and his early slogan was, "To bring the Empire alive!" [5]. Through his Empire Marketing Board, he trained and employed upper and upper-middle class, well-educated camera operators as his crew. His method and vision were totalizing. He sought to valorize the United Kingdom through his films. To this end, he consistently solicited state and private sponsorships. He found willing partners. Shell and the national gas industry-funded some of Grierson's earlier films. The documentaries they sponsored dealt with cooking gas and getting *Enough to Eat* (1936). In many ways, Grierson was beholden to his financiers. Though he produced and helped to distribute over 1000 documentary films, they never drew a partisan stance outside the mainstream. They never challenged the status quo. In many ways, a mainstream status-quo is what Grierson was hoping to establish with his films. They were closed texts presenting fully formed

arguments about what it meant to be a subject in the British Empire. Corporations, the government, and the mainstream ostensibly used the films in their favor and in the name of unifying the national identity. Even then, his films reached more of a middle and upper-middle class audience than the working poor that he filmed.

Strongly influenced by Walter Lippman's *Public Opinion,* Grierson's desired to affect political and social change by better informing the public. His financiers and his elitist and nationalist viewpoints influenced his work. He does not interview any of the dockhands in *Shipyard* nor the miners in *Coal Face* (1935). Grierson's perspective on reality was coded into his films most frequently through his use of voiceover, a first for the form [32]. This rhetorical move confers authority upon the disembodied voice [11].

In *Coal Face* (1935) Grierson's GPO Film Unit filmed the work of miners during this period. W.H. Auden wrote the accompanying voice over and performed it himself. Over stark images, presented in Figure 13, Auden's phrases are presented as facts, "The electric lamp warms the mine, "The miner's life is bound by the pit," and "the miner's life depends on the pit." With operatic music in the background, the statements about the miners' toil are rhetorically elevated. The authoritative statements by Auden do not make room for critique.

Figure 6 Auden's phrases accompanied these stills from *Coal Face.* The electric lamp warms the mine", "The miner's life is bound by the pit", and "the miner's life depends on the pit."

Grierson refers to his documentary films as, "the creative treatment of an actuality." It is not that these experiences and the subjects within them do not exist, but that they are constructed to be identifiable and are dramatically compressed. They are, in Grierson's language, "truth made beautiful." Documentaries are always an interpretation of reality and therefore suspect [32]. The presented values embedded through a medium's rhetorical affordances create this actuality. For Flaherty, it was exploitive and observational—constructed moments of human wisdom and beauty—that made up his actuality. Grierson, on the other hand, wanted to construct and impose his actualities upon others in order to motivate social engagement with the day's issues. For example, he felt that the films his Empire Marketing Board produced in the 1930s helped collectively prepare Britain for World War II [5]. A self-aggrandizing statement on Grierson's part, but one that perfectly highlights his values—loyalty to the empire, national unity, and the belief that power comes from an informed public through media.

2.2 The Gaze

Bill Nichols' use of the word gaze is an intentional reference to Laura Mulvey's essay on Visual Pleasure and Narrative Cinema [20]. In his response, he attempts to divorce the gaze's subjugation of the subject from the epistemology of documentary.

> Mulvey's feminist psychoanalytic dissection of Hollywood erotics—the cost of aesthetic pleasure within the economy of that system—could be paralleled by a dissection of documentary ethics—the cost of epistemophilia, or desire for knowledge, within the economy of this system.

He hopes to cordon off the documentary film gaze from the Hollywood mainstream, the kinds of films about which Mulvey was writing. In doing so, he appears to tactically claim the instrumentality of the gaze and ignore its oppressive aspect. He parallels Mulvey's construction of the gaze.

- Laura Mulvey, "Playing on the tension between film as controlling the dimension of time (editing, narrative) and film as a controlling the dimension of space (changes in distance, editing), cinematic codes create a gaze, a world, and an object, thereby producing an illusion cut to measure of desire."
- Bill Nichols, "Playing on the tension between film as controlling the dimension of time (exposition, narrative) and film as a controlling the dimension of space (changes in distance, place, perspective), cinematic codes create a gaze, aimed at the historical world, and an object (the desire for and promise of knowledge), thereby producing an argument cut to ethical, political, and ideological measure."

By claiming the subject of the gaze for documentary is an object, Nichols sidesteps critical and ethical accountability in the pursuit and representation of knowledge. What he misses, is that a producer or documentarian can only suggest an audience's reception of a mediated representation. The gaze always rests upon bodies, even those that are historical. Accordingly, Nichols cannot sidestep the negatives of scopophilia to avoid Mulvey's insight into the erotic subjugation that occurs. The oppressive aspects of scopophilia are not ignorable. Getting pleasure from looking happens at the leisure of the audience at the potential detriment of the subject. The gaze needs be grappled with to expose its power dynamics and structural injustices.

To do this work, the rhetorical instrumentality of the gaze needs to be explored. When Nichols was writing, there were only a few scholars engaging with the gaze in a critical way. For example, bell hooks' critique of the gaze in her book *Black Looks* was published a year after Nichols' book. Since then, there have been an explosion of gazes. Each has tried to clarify what has become a totalizing concept [21]. Each scholar or practitioner has attempted to use the gaze to frame the subject or their visual argument in a way that has benefited either themselves or those they seek to represent. In each of the examples in this section, the rhetorical impact of the gaze's instrumentality will be explored. The instrumentality of the gaze contains potent rhetoric because it dictates who is looking at whom, why, and with what kind of power.

2.2.1 *Engaging Mulvey's Definition of the Gaze*

When Mulvey introduced the concept of the male gaze in 1975, it referred to the asymmetry of power between genders in mainstream cinema and was necessary for understanding the power imbalance's ideological consequences. Mulvey's male gaze referred to the act of representing women and reality from a masculine perspective, one that presented women as sexual objects for the pleasure of the male viewer [20].

> In a world ordered by sexual imbalance, pleasure in looking has been split between active/male and passive/female. The determining male gaze projects its phantasy on to the female form which is styled accordingly. In their traditional exhibitionist role women are simultaneously looked at and displayed, with their appearance coded for strong visual and erotic impact so that they can be said to connote to-be-looked-at-ness

The male gaze is enacted by one, assuming a man is behind the camera; two, the characters within the scene or film; and three, by the male members of the audience—the spectators [20]. The female body is reduced to a signifying image that is in the service of male-dominated heterosexual narratives. As Mulvey states, "Woman's desire is subjugated to her image [...] as bearer, not maker, of meaning."

The concept was affirmed by how quickly it was picked up by the mainstream [21]. Writers in the New York Times and the New Yorker were writing about the male gaze and applying the term to the worlds of art history and literature [21]. This emancipation from cinema, though it broke the bounds of Mulvey's argument, still rightfully critiqued an oppressive mode of representation.

Table 1 Kinds of Gazes

Kind of Gaze	**Male** [20]	**Female** [22]	**Oppositional Gaze** [23]	**Shared Gaze** [24]	**Gay Male Gaze** [25]	**Lesbian Gaze** [26]
Behind the Device	Men	Women	Black women	Anyone	Men	Women
Subjects	Women	Everyone	White supremacy	Each other	Critical identification	Coded identification
The Audience	Men	Everyone	Black women	Each other	Men	Women

2.2.2 *The Epistemological and Other Gazes*

From 1975 to 2014, many other gazes made their way into the mainstream including the Female gaze [27], oppositional gaze [23], the gay male gaze [25], and the lesbian gaze [26]. These gazes are summarized in Table 1. In 2014, Jill Soloway, the producer of *Transparent*, an Amazon show about an older man becoming a trans woman later in life, claimed the camera's gaze for all genders [28].

> 'We're taught that the camera is male,' she said, […]'But I'm not forcing everybody to fulfill something in my head and "'Get it right—now get it *more* right.'" Directing with 'the female gaze,' she asserted, 'is about creating the conditions for inspiration to flourish, and then discerning-receiving.' [28]

Given the malleability of Mulvey's concept—how it has carried over into various media, politics, genders, and relationships—it is not easy to pin down, "who is looking at whom with what kind of gaze at any given moment" [29].

This matters because there is an orthodoxy surrounding Mulvey's concept of the male gaze that encourages critical judgment, indignation, and often alludes to a perverse and obsessive sexual desire. This fundamentalism blinds us from the instrumentality even as it critiques it. Perhaps this is why Mulvey, returning to her concept years later, sounds unnerved with the reception of the male gaze. In 1990, writing in *Visual*, Mulvey amends the proselytizing mission of the essay and clarifies that she was putting forward a line of thought, not a political weapon for adjudication [21]. Her gracious re-evaluation changes the male gaze from a totalizing concept to an intellectual springboard to understand a myriad of gazes. In Figure 5, four separate gazes that will be discussed next are illustrated.

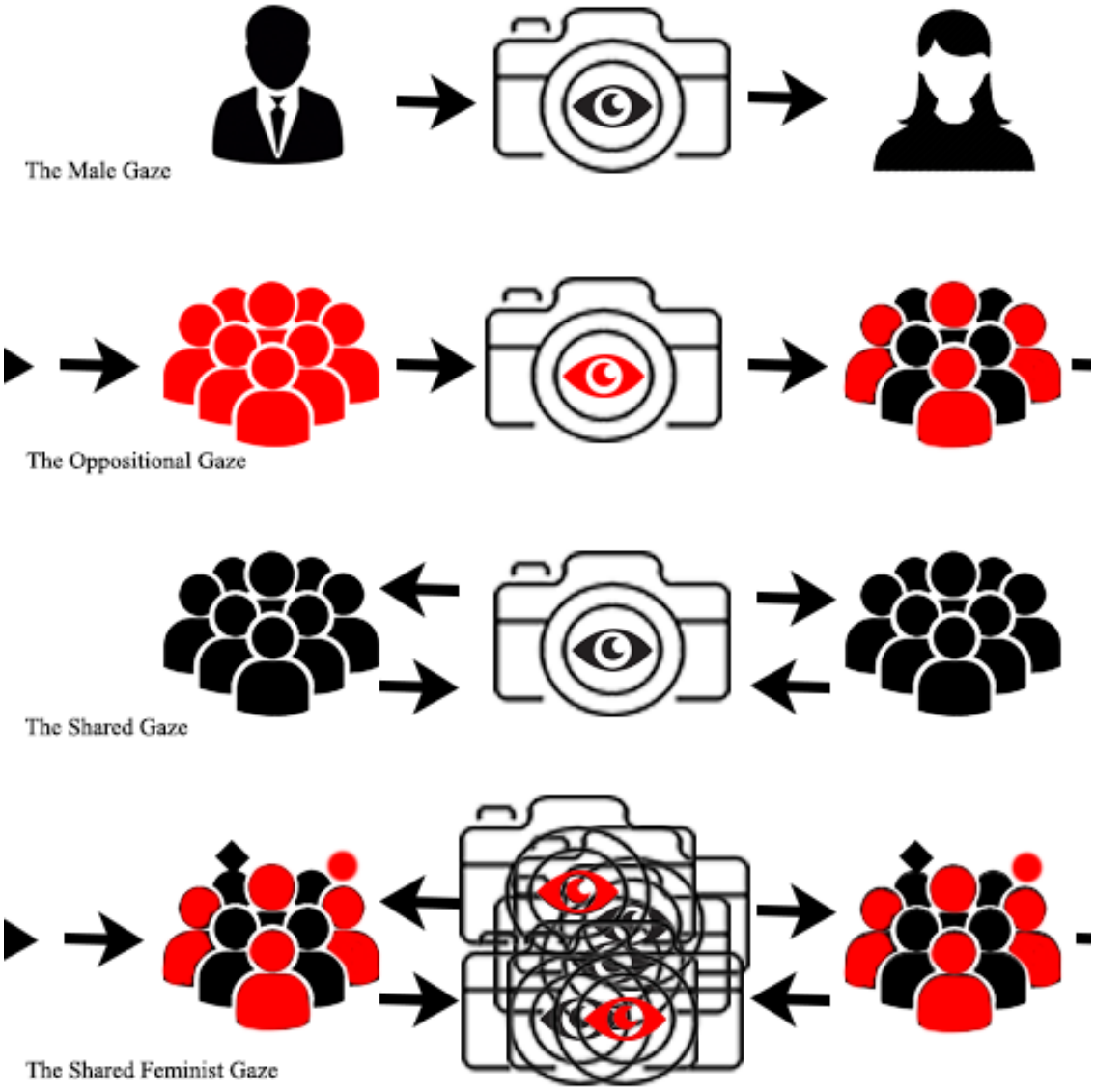

Figure 7 The instrumentality of the gaze through four different gazes. On the left are those behind the gaze. In the center is the media optics. On the right, the person or persons being made a subject by the camera. The arrows are representative of the gaze's directionality. An arrow that goes off the figure and comes back around signifies an open process in which participants come and go.

2.2.2.1 The Oppositional and Shared Gaze

The celebrated scholar bell hooks engaged with Mulvey's theories head-on in her book, *Black Looks.* hooks, recognizing an absence of positive images of people of color in American cinema, roots the male gaze in white supremacy.

> Since I knew as a child that the dominating power adults exercised over me and over my gaze was never so absolute that I did not dare to look, to sneak a peep, to stare dangerously, I knew that the slaves had looked. That all attempts to repress our black peoples' right to gaze had produced in us an overwhelming longing to look,a rebellious desire, an oppositional gaze. By courageously looking, we defiantly declared: 'Not only will I stare. I want my look to change reality.'

A few chapters later, she orients the gaze as socially reflexive—the act of gazing an engagement and reckoning with the political power of media inscribed representations.

> We experience our collective crisis as African American people within the realm of the image. Whether it is the face of homeless folks encountered in city streets or small town alleyways, the wandering gaze of the unemployed, the sight of our drug addicted loved ones, or some tragic scene from a film that lingers in the mind's eye, we see that we are in trouble.

That to not engage the gaze in this socially reflexive manner directly propagates the colonizing imperial gaze [24][19]. bell hooks then claims the gaze not for critique, but for solidarity, through her analysis of the film, *Illusions*. The 1982 film depicts the life of a black woman passing as a white woman working in the film industry during the 1940s. She analyzes a moment between Mignon, the protagonist, and the young black woman she protects.

> It is this process of mirrored recognition that enables both black women to define their reality, apart from the reality imposed upon them by structures of domination. The shared gaze of the two women reinforces their solidarity.

With this analysis, she formalizes and recognizes the ways in which communities of marginalized people band together through a shared gaze to protect their reality from dominant and oppressive structures. In communities throughout history, this kind of shared gaze, in which cultural codes resonate with shared values, has existed. It may be more evident in minority communities, especially as groups have moved online to subreddits like /r/Judaism, /r/Latino, /r/blackreddit, and through hashtag communities like Black Twitter. However, the instrumentality of a shared gaze has been used by the dominant discourse throughout history to enforce its perspective and marginalize others as well[20].

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[19] NF filmmakers have discussed other gazes including the imperialist gaze [182], state's gaze, interventionist gaze, donor gaze [181], accidental gaze [11], helpless gaze [11], endangered gaze [11], the professional gaze [11], the clinical gaze [11], and the Eurocentric gaze [180].
[20] The imperial gaze and the state's gaze.

2.2.2.2 The Gay Male and Lesbian Gazes

Scant literature exists on the construction of these two gazes but what does exist points to two different reflexive strategies. According to M.J. Wood, the gay male gaze is a complicated reckoning with the need to be gazed upon affectionally, but also to have the power of the male gaze to subjugate [25]. It is a complex relationship in which the gaze is not always for solidarity.

> Whereas feminists have fought passionately against the male gaze, many gay men are still fighting passionately for it, striving to extend its reach, wishing to partake of its power. For those who feel like chronic losers in the competitive game of the gay male gaze, there is a dearth of critical discourses within gay communities to resist its cultural hegemony; and as a result, there is an overabundance of personal narratives about feeling ugly and inadequate. [25]

In contrast, the lesbian gaze celebrates the "love and desire between women realistically rendered" [26]. Film scholar Natalie Wilson writes about the lesbian gaze concerning the movie, *Carol* (2015).

> […] Carol and Therese gaze at one another—and we gaze at them—far more than we listen to or hear them. Whether Haynes intended to use silence symbolically remains unclear; the use of furtive glances, reflections, mirrors, and windows is far more prominent. It's a choice which evokes a lesbian gaze of sorts, allowing us to "see" lesbian desire. [26]

Her final comment on *Carol* and the lesbian gaze is a critical observation of gazes in general. She concludes, “Perhaps more subtle and poignant, however, is how this ‘gaze’ will continue to refract and evolve, toggling between desire, captivity, and queer politics.” [26] This is because gazes are socially constructed, facilitated by detached media technology, to embed values. They will continue to shift and evolve with cultural conditions and represent the ideology and politics of their gazers. As art historian Reina Lewis states, "there is no such thing as 'the' lesbian gaze, singular; since all lesbians are differentiated by class and racializing terms. [30]. All gazes, then, are not singular but as diverse and multivariate as those doing the gazing.

2.2.3 *The Instrumentality of the Gaze*

The instrumentality of the gaze is established by Mulvey’s three tenets for the male gaze—one, a person behind the camera; two, the relationships of the subjects on screen; and three, the audience. The relationships between these three tenets are shaped by the ideology, ethics, and politics of the NF storyteller. In an INF experience, the person behind the optics, the people on the screen, and the audience may all be members of the same community[21]. The instrumentality of the gaze can be erotic, epistemological, didactic, imperial, shared, or oppositional. It is bound up in the ethics of curiosity and is embedded, “in other kinds of social—economic, institutional, tribal, ‘racial'—relations." [21] The

[21] This arrangement of the gaze's instrumentality would be an example of bell hooks' shared gaze.

optics of the camera facilitate gazing in an attempt to discover or create knowledge about a subject. The gaze never merely settles upon a historical moment or scene within the world. We cannot ignore that the gaze that settles upon bodies within a presented scene [11]. For this reason, the gaze's rhetorical use for didactic ends has political and ethical implications. To inform how emerging media's new optics are instrumental to this process, a new gaze needs to be established for reality media. This alteration is shown in Figure 6.

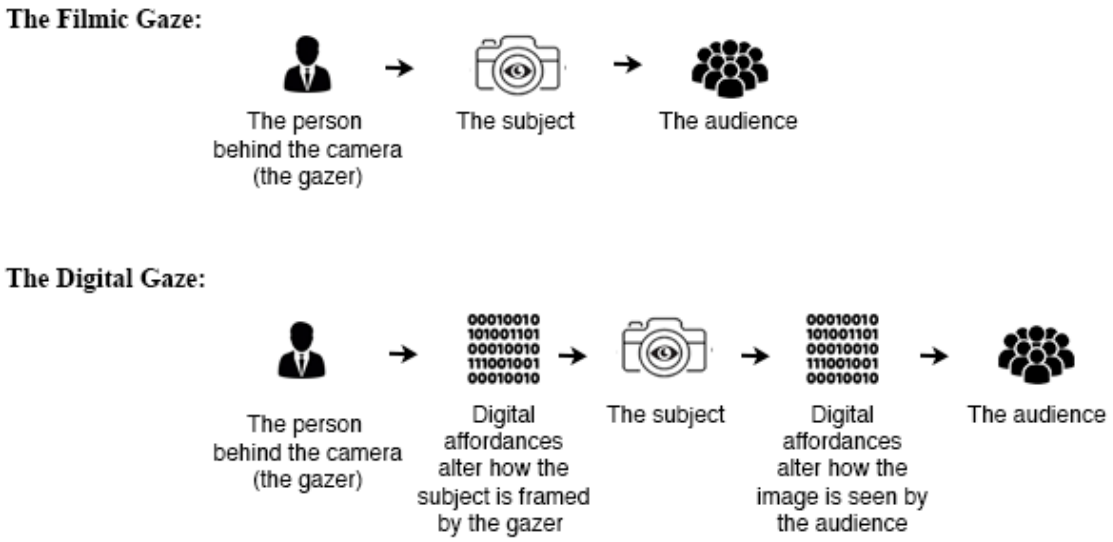

Figure 8 The instrumentality of the digital gaze takes advantage of computational affordances, such as interaction, to shape how the representation of the subject is framed and received by an audience.

2.2.4 *Positioning the Digital Gaze*

Computational media and hardware affordances have altered relationships between authors, subjects, and audiences. This change has led to a new kind of gaze. This new gaze takes advantage of multiple optical lenses (in a singular device or multiple devices) and relies on computational affordances to construct the image and frame the subject. The

image might be constructed by a single gazer using the camera on a mobile phone or multiple gazers using the optics of tablets, mobile phones, and AR glasses. The digital gaze is used to create selfies[22], is evident in iOS camera's portrait mode[23], and to stitch together images as part of a 360-degree panosphere for immersive cinema. In each instance, computation influences the optics and the resulting image. This is especially true for reality media such as AR and MR which rely upon a gaze to occlude physical reality and make their spatial-visual representations react contextually to their environment[24]. For Snapchat AR filters, for example, the AR content relies on computer vision to detect the features of someone's face[25]. Once detected the AR content appears and response to facial gestures such as winking or turning one's head.

2.2.5 *The Digital-Shared-Feminist Gaze*

The digital gaze only provides new opportunities for the gaze's instrumentality. It does not result in a more ethical or humane gazing. The digital gaze can still be used for imperial, state, male, and subjugating purposes. However, the positive impacts of the more

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[22] Through the use of filters on Instagram, Facebook, and snapchat selfie pictures are modified to look and be viewed by an audience in an intentional manner.

[23] For the iPhone X, the iOS portrait mode utilizes the camera's hardware and computational affordances: 12mp wide-angle and telephoto cameras, optical zoom, digital zoom up to 10x, dual optical image stabilization, six element lens, quad-led true tone flash with slow sync, sapphire crystal lens cover, backside illumination sensor, hybrid infrared filter, autofocus with focus pixels, tap to focus with focus pixels, live photos with stabilization, body and face detection, exposure control, noise reduction, auto HDR for photos, auto image stabilization [179]

[24] For example, making sure a 3D object is properly lit in a dark room.

[25] The Snapchat filters provide a wealth of evidence for the digital-male-gaze in which AR content is a, "phantasy projected onto the female form which is styled accordingly". [20]

ethical and pluralist instrumentality posited by hooks, Nichols, and Lewis can be enhanced through the digital gaze. INF experiences can use this gaze to create equitable relationships between practitioners, subjects, and participants. The use of such a gaze would be shared and feminist. Lorrie Moore has referred to this as a kind of feminist gaze. She defines it as, "a composite vision and the more complex and authoritative, by virtue of containing additional information" [22]. It is shared because it allows participants and subjects to both reflect with one another, and it is feminist in the sense that it synthesizes each participant's situated knowledge [31]. When a shared gaze is enacted by a diverse group of participants, their vision becomes a kaleidoscope, a mosaic of situated perspectives. Their different ways of seeing become manifold. This entire process is facilitated by algorithmic processes that allow for the sharing, modification, and creation of images through the optics of multiple devices.

The importance of achieving a digital-shared-feminist gaze is that it makes the process of embedding values equitable. An NF experience, particularly an interactive one, should seek to create a digital-shared-feminist gaze to develop an inclusive and pluralist representation of reality. This reality is achievable only when the participants are able to identify their own embedded values in the representation. Utilizing hardware affordances and computation can enable participants to co-construct their subjects, in real time, through their devices. For this dissertation's workshop, the mobile app provided participants with this same opportunity. Participants decide who sees, what they're looking at, and why. To this end, they use their device's optics to embed their own values in their co-constructed

representations of reality. A medium's inscription technology contains myths that rhetorically elevate the objectivity of these representations.

2.3 The Medium's Inscription Technology

The documentary form has always relied on the perceived objectivity of a media technology's afforded inscription to give films an impression of objectivity. The form's dependence objectivity has been a rhetorical tool claimed by documentarians to create an authoritative distance from their subjects [34]. The historical root of this belief is situated in mid-19th century France where M. Francois Arago persuaded the French government to buy Daguerre's patents [34]. He argued that the camera should join other instruments of scientific inscription because its whole experimental apparatus relied on observation. The camera was to join the barometer, thermostat, microscope, and telescope as an instrument of scientific observation and experimentation [34]. The information inscribed upon the artifacts produced by the medium's technology were claimed by him to be as objective as any other scientific instrument. While Arago did concede that the camera was used to create art, he claimed that the creation of such aesthetic works has always been in service of science. He pointed to the tedious transcription of Egyptian hieroglyphics as a mode of scientific inscription that could be remediated by the camera [34]. This rhetoric aligned with the period's belief in the objectivity of the image. Centuries of collaboration between cartographers, astrologers, botanists, and their visually talented illustrators, painters, and printmakers [35]. Over time, this aligned popularized visual representations with the scientific and factual [35].

Arago's claim that the camera was used to create art that was in the service of science became part of the dominant discourse in French society. As he worked with the government to popularize the technology, he also conditioned the public to believe that the camera did not lie. It produced results analogous to nature. The fact that it could be manipulated more comfortably than a barometer did not matter as much, in the rhetoric of Arago, than the technology's capacity to represent reality [34]. This dogged servitude to science exists in contemporary documentary studies. When Nichols discusses the construction of the documentary's gaze, he claims a camera's optics vivify the subjective tonalities of the scene to embed values. He invokes scientific inscription as the basis of the constructed gaze's epistemological foundation [11]. He even goes a step further, claiming that the modes of scientific inscription and mechanical production reinforce one another to produce, "more intuitive, empathetic, or gnostic forms of knowledge." At its core, this is still a rhetorical claim relying upon the perceived objective inscription of the camera that was posited by Arago's conceit.

Throughout documentary history, there have been documentarians such as Flaherty and Grierson, who privileged art above the rhetoric of scientific inscription. They achieved this through their particular visual rhetorical. As discussed in the previous section, their ideology and the values they wanted to encode shaped their rhetorical approach. Grierson's cameramen were not seeking to recreate reality. They were interested in making informative and compelling arguments. The advent of Direct Cinema made the same claims as Arago and relied upon the supposed objectivity of their handheld cameras to invoke a rhetorical distance for their arguments. They sought and found success in enforcing claims

of objectivity by saying that they were merely a fly on the wall while they filmed. This claim was further muddied by what John Tagg recognized as the techniques of visual rhetoric to imply objectivity:

> The long takes, the lack of commentary, music and sound effects, the absence of cinematic lighting, the understated titles, even the early, persistent use of black-and-white stock [footage]—what are these if not the earnests of objectivity for an audience schooled in the reception of realist images, earnests vouched for the subjects' occasional direct gaze at the lens and occasional jump cut [36]

It was not until cinéma vérité (CV)—wherein the filmmaker thrust themselves into the film to construct scenes—were these techniques deliberately exposed. Even then, this was in the service of affirming some revered scientific objectivity. In many ways, the CV documentarian frames themself as a scientist experimenting with and on their subjects. It is a rhetorical move that feigns the opening of a black box.

The documentary form shares this with other scientific instruments that produce representations. Even the strongest of critics must at some point come face to face with some black-boxed technology. Take Bruno Latour's "Obstinate Dissenter" who demands to see how the results of an experiment are achieved [37]. The dissenter attempts to deconstruct the text, to get past the results, to how they were made and by which machines. Eventually, the dissenter ends up in the laboratory of the very patient scientist. At some point, the dissenter witnesses a scientific machine produce the very same published image or result they had critiqued. This moment is a confrontation some film, screen, or print-out

that has been constructed by a scientific instrument. While they watch this occur, the scientist may be providing verbal commentary, a running narrative on what the dissenter is seeing. Such a relationship echoes that of a critical audience and a documentary. What the audience is seeing is an actuality developed by a system of optics.

When a documentarian claims that they are collecting a series of stories to make a particular argument about reality, they rhetorically invoke the same data collection practices as Latour's scientist. As documentary scholar Brian Winston states, the documentarian cannot "avoid the scientific and evidential because those contexts are ‘built-in' to the cinematographic apparatus." [34]. Documentary's rhetorical claims of objective and authoritative representation hinge upon this historical assertion of the camera's scientific inscription. Grierson relies on as much in his initial essay on the principles of the documentary form.

> Documentary would photograph the living scene […] the original (or native) actor, and the original (or native) scene […] We believe that [these] materials and the stories taken from the raw can be finer (more real in the philosophic sense) than the acted article. [32]

Similar lofty claims of authority based upon objectivity created by black box scientific instruments are problematic and have been worthy of their critique. Perhaps the most productive critique for this dissertation belongs to Donna Haraway. She critiques these claims of authority as "god tricks" and puts forward situated knowledge [31]. Haraway dissolves the authority of the scientific gaze as an omniscient observer into a

network of contested observations. In many ways, the move to participatory INF mirrors this same dissolution. Her argument for, "politics and epistemologies of location, positioning, and situating, where partiality and not universality is the condition of being heard to make rational knowledge claims" regarding a feminist science is inherent in the epistemology of INF. She continues:

> The science question about feminism is about objectivity as positioned rationality. Its images are not the products of escape and transcendence of limits (the view from above) but the joining of partial views and halting voices into a collective subject position that promises a vision of the means of ongoing finite embodiment, of living within limits and contradictions of views from somewhere.

In INF, those "views from somewhere" come from individuals sharing their lived experience as part of a participatory storytelling process. Individuals' representations become more identifiable as they participate in the experience. When the audience and the participant are the same, the gaze reflects onto the participant. Each new participant in an INF clarifies the details of a historical moment by contributing their knowledge. The media technologies used as part of a digital-shared-feminist gaze provide information perceived as objective. The media buttress their stories and arguments with a foundation of these perceived facts. Each new medium affords new modes of inscription that the participants use in their process to build this foundation. This method was recognized by Nichols in the relation between the observer and observed in the traditional film documentary, but it transmutes into a different process when it becomes participatory.

2.3.1 *The Rhetoric of Realist Enargia*

Enargia is a rhetorical term for a compelling, vivid description that recreates something or someone before the reader, listener, or user's eyes [38]. It is thorough descriptions, textual and visual, that achieve a simulation of the event. It is used to make the event palpable, visible, and manifest [39]. The term has not received attention from digital rhetoricians, but it aptly describes the goal of creating vivid, purportedly accurate representations of lived reality through emerging media. When invoking the myth of scientific inscription, such practitioners hope to provide enough realist details to make active knowledge claims via their simulations. If the myth of scientific inscription is about the action of inscribing and recording; then the rhetoric of realist enargia is the sum of that inscription, the final mediated composition. For example, the myth of scientific inscription for film argues that the optics and natural light produce an image that is authoritative enough for scientific observation. The construction of optics and light, the mechanism, are the rhetoric of inscription; that the image is "true enough" enough to be a simulacrum, is the rhetoric of realist enargia.

There is a propensity among practitioners of INF with reality media to invoke high resolution textures and minute details created through photogrammetry as part of their experiences. This is an invocation of realist enargia. This can be done with just intentions. Take, IN producers Gabo Arora and Ari Paltiz on the *Last Goodbye,* a VR tour of Majdanek concentration camp.

> Making the recreation accurate to a pixel-by-pixel level was absolutely integral. Holocaust deniers, Smith notes, often point to small details as proof that something was falsified, and the very point of *Last Goodbye* was its authenticity […] 'We didn't want to do anything in modeling or CG terms that seemed fake in any way.' […] It was a tough process, but the result feels as real as anything in VR can right now. [40]

It is the small details and "pixel-by-pixel" representation that come together into a virtual environment that "feels as real as VR can right now". This is an invocation of realist enargia.

Figure 9 Producers of *The Last Goodbye* create onsite at Majdanek concentration camp and invoke a realist enargia in their experience. Notice that the shadow in the right-hand picture is much smoother and stretches farther into the background than the actual shade.

Nonny de la Peña goal of achieving her "Response-as-if-Real" (RAIR) effect through her work uses similar rhetoric. In *Gitmo,* a VR documentary, de la Peña places the user into the body of a male prisoner. He is bound in a vulnerable position within a cell. Next door, the audio of U.S. military personnel torturing another inmate can be heard.

When the user turns their head, they see the horrible cell, the bound body of the detainee, and his haunting face staring back at them in a mirror, as if it were their own. Even though there is no embodied interaction, the user is embodied not just in the space but within the body of the detainee. In one of her foundational pieces on Immersive Journalism, de la Peña says, "participants would be induced to feel personally nervous about the situation that they were in." [19] This is not an appeal to objective facts, but one of realist enargia.

The RAIR effect of feeling like one is there invokes the myth of scientific inscription—the details gleaned from documentary evidence vivify the scene. The sum of that evidence and its abstraction as an immersive virtual environment invokes the rhetoric of realist enargia. De la Peña says as much when toward her conclusion, which grapples with the representing reality, "Immersive journalism does not aim at presenting 'the facts' but some aspect of the experience that cohabit with 'the facts'" [41]. This partner-to-fact is the rhetoric of realist enargia, constructed around the facts provided through the myth of scientific inscription. It is this rhetoric which is used create knowledge through the representation of reality.

Figure 10 In *Gitmo*, users are put into the same position as the prisoner and can see their avatar's reflection in a digital mirror.

2.3.2 *The Rhetoric of Auratic Presence*

Walter Benjamin has stated that each performance of a play has its own auratic[26] quality [42]. Benjamin wrote that the difference between the performance of a theater actor and one on film is that each night the theater performance is different. The actor's unique

[26] "We define the Aura of [natural objects] as the unique phenomenon of a distance, however close it may be. If, while resting on a summer afternoon, you follow with your eyes a mountain range on the horizon or a branch which casts its shadow over you, you experience [breathe] the aura of those mountains, of that branch." [22]

performance has an auratic quality [42]. Extending this outside the theater, original acts in general have their own aura, a composition of time, movement, space, and aesthetics [43]. Similarly, a participant's interaction through and with an INF also have an auratic quality to them. This personally created aura may be eminently more identifiable to the participant than the original. This is due to the fact that uses co-create the aura through their interactions. INF experiences and practitioners often attempt to rhetorically equate this aura, co-created by the participant's interactions with the text, with experiencing the actual historical event in physical reality. This is a rhetorical move I am referring to as the rhetoric of auratic presence.

First, the rhetoric of presence is not to be confused with the sense of presence, immersion, or the long tradition of the term presence in psychology. It does not have to do with the phenomenological feeling of being within or part of a virtual environment, performance, or story world. The rhetoric of presence is instead about emphasizing, for an audience, the relevant arguments or facts to perform the truthfulness of the story or experience.

> […] achieving presence is a rule that guides the process of selection; we choose words, phrases, figurative images, and other discursive strategies to either (a) make something absent 'present' to our audience or (b) increase the presence of something that has already been brought to the audience's attention. [44]

The relevant images and arguments become elevated through an artful selection that call for a user's attention. In filmic documentary, this could be through the stringing

together of images through the filmic grammar of association or implication. It could be the use of a docudramatic structure to elevate the constructed conflict about documented material. Moreover, through digital media, it can be about elevating interactions and dramatic agency with the material over the factual experience [45].

Chris Milk invokes the rhetoric of auratic presence when he says this about his 360-VR IN, *Clouds over Sidra.*

> […] when you're sitting there in [child refugee Sidra's] room, watching her, you're not watching it through a television screen, you're not watching it through a window, you're sitting there with her. When you look down, you're sitting on the same ground that she's sitting on. [12]

Milk attempts to capture the aura of the moment with his production crew and 360-camera. He utilizes rhetoric of auratic presence to present his representations of reality to the user. The interactions of "watching her" and "sitting on the same ground that she's sitting on" are rhetorically meant to elevate the truthfulness of the experience. In both his TED talk and the experience, Milk and his crew use a rhetoric of auratic presence to elevate a constructed representation of reality and its aura above the original. When the experience is accepted, aura and all, it can create knowledge. Indeed, Milk's experience has been used to positive effect for the refugee crisis in Syria.

Contrast this with the work of Nonny de la Peña [46]. In de la Peña 's immersive journalism experiences users can move about the scene and engage as an active witness. She attempts to re-create the aura of the scene through a rhetoric of realist enargia, using

photogrammetry and remediated documentary evidence, and agency. Interactivity in the scene allows individuals to create knowledge out of what de la Peña has made present. The construction of the virtual environment and its critical junctures for interaction are part of the rhetoric of presence.

Such moments are auratic in and of themselves. A user that is experiencing *Daniel's Story,* who is standing next to Daniel's homophobic mother when she reaches out and punches him, has a unique and compelling experience as compared to someone standing in the corner of the virtual living room. This is shown in Figure 11. The intensity of that co-created aura—a user standing in the right place at the right time in a scripted moment—experiences de la Peña 's rhetoric of auratic presence. The aura is co-created by the participants interaction with the text. They feel a sense of ownership of their interaction in response to their experience. In the context of the experience, in relation to the realist enargia, this moment can achieve de la Peña 's RAIR effect.

Figure 11 A still from Nonny de la Peña 's *Out of Exile: Daniel's Story*

2.4 Documentary Voice

The documentary voice is the factor of the RAF that describes how an argument is constructed by a documentarian for an audience above a subject[27]. The documentary voice has changed throughout history as new affordances and INF forms have been made available through emerging media. The use of hyperlinks, for example, provided a new logic for a using their documentary voice to construct their argument. Accordingly, the Modes of Engagement and the various Techniques for Engagement shifted as well.

[27] For clarification, the audience is those watching a film or engaging with an INF experience; documentarians, frame the actuality and facilitate the documentary process; and the subject(s), are what is being explored, promoted, witnessed, or expressed [169].

2.4.1 *The Participatory, Performative, and Reflexive Modes of Documentary*

Filmic and theater NF have a myriad of existing documentary voices that define their mode of representation reality. Nichols's posits the participatory, performative, and reflexive modes of documentary[28]. These different Modes of Engagement can be used to understand how the documentary voice constructs arguments through representations of reality created with emerging media. Nichols defines the reflexive mode of documentary as a film that shows how the experience is constructed and attempts to show its implications. Dziga Vertov's *Man with a Movie Camera* (1929) is an example of a reflexive film. The process of representing reality is shown to the audience to encourage them to develop a critical attitude toward the subject.

The participatory mode of documentary is when the filmmaker directly engages and interacts with their audience. Take for example, Michael Moore's *Bowling for Columbine* (2002). Moore uses his favorite technique of faux-naïveté as part of his documentary voice. He plays dumb but asks leading questions until the subject speaks the truth Moore is constructing. This Technique of Engagement can amount to social manipulation in Moore's participatory mode. After an introductory montage of America's passionate addiction to firearms, he walks into a bank somewhere in middle America.

[28] He also posits the poetic, expository, and observational modes but these modes of documentary do not involve interactions between the filmmakers, subject, and audience.

> ‘I want the account where I can get the free gun,’ he says. The bank manager unblinkingly agrees. The only prerequisite to this offer is, apparently, that the account holder isn't ‘criminally defective’. ‘So it's OK if I'm normally mentally defective but not criminally?’ asks Moore. ‘Yes,’ says the bank manager. ‘Don't you think it's a little dangerous handing out guns in a bank?’ asks Moore. [47]

Moore is quite intentional in his framing of the bank manager’s participation. Although the bank manager does not speak much, Moore's performative dialog belittles the woman and her opinions. She becomes marginalized by Moore's documentary voice and the manager is not given a chance to explain her position. This use of the documentary voice to construct an argument that belittles of the subject is commonplace in satirical news shows where interviews are done in bad faith. These include the Daily Show and Sacha Baron-Cohen’s *Ali-G* (1999) and *Who is America?* (2018).

The performative mode, which is often confused with the participatory, also includes interactions between the subject and filmmaker but the knowledge they attempt to create is deeply personal and subjective. For example, Marlon T Riggs’ *Tongues Untied* (1989) uses documentary footage, personal testimony, poetry, and montage to give specificity to black gay identity. Riggs speaks for himself but also integrates testimony from other gay black men. Interspersed is archival footage of the Civil Rights Movement and a homophobic performance by Eddie Murphy. All of these rhetorical elements come together to create a performative documentary voice that creates knowledge.

These three modes, the participatory, performative, and reflexive are foundational to how the documentary voice is enacted in INF experiences. Take, for example, the award-winning interactive documentary, *Welcome to Pine Point*. It is an exploration of a failed town in the Northwest Territories, that uses simple interactions with archival text to move the narrative along [48]. This simple co-creation of meaning by clicking through hyperlinked text was intentional. It draws reflexive attention to the form [48]. The producers wanted to make the experience as similar as they could to reading a book. To this end, there was no voiceover narration, and most of the visuals were passive. "For Pine Point, we chose not to have a voice-over narration, but to let people be their own narrator," said producer Paul Shoebridge [48]. *Welcome to Pine Point* is exemplary of how the interactivity provides new affordances for the reflexive and participatory modes.

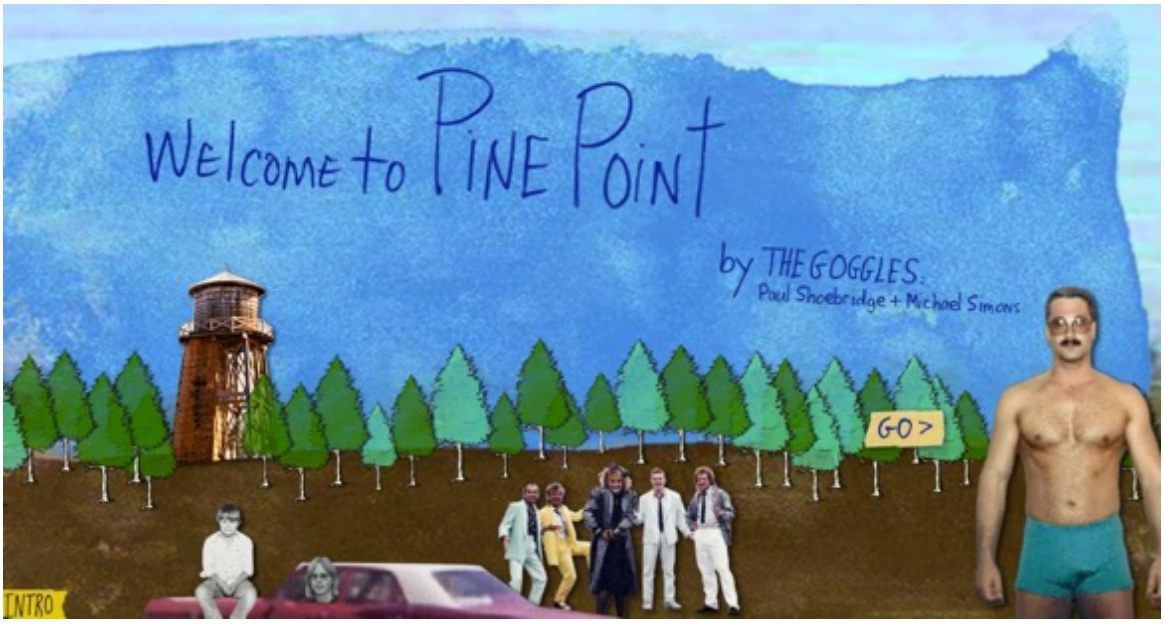

Figure 12 *Welcome to Pine Point* utilizes reflexive and interactive documentary forms as the basis for its rhetorical interactions

2.4.2 *The Documentary Voice and the Shift to Interactive Documentary*

In 1991, Bill Nichols said, “Emerging digital technologies are transforming representations of reality” [11]. By that point, they were already in use by some scholars, computer scientists, storytellers, and documentarians. In 1978, the Aspen Movie Map, funded for military, not documentary reasons, provided users with their first interactive virtual tour of a city[29]. Every ten feet, shots taken by 16mm cameras atop a car, were taken of Aspen's streets. The shots were on laserdiscs and their scenes, stored in a database, were aligned with a 2D map. As users chose which direction they would move through the Movie Map's graphical interface, a server would deliver scenes from the appropriate laser discs.

The Aspen Movie Map’s mechanism of presenting information via a database is one of the foundational interaction patterns discussed by Kate Nash, Sandra Gaudenzi, and Judith Aston [49, 50]. The experience is a combination of the hypertext, clicking between linked nodes and the experiential, exploration through an environment or immersive experience. These mechanisms are based on Nichols’ reflexive, participatory, and performative modes.

Nine years after the Aspen Movie Map, Glorianna Davenport, founder of the Interactive Cinema Group, released *New Orleans in Transition: 1983-1986* (1987). It is a multi-laser disc system that allowed users to see how New Orleans was preparing to host the World's Fair. Students could pull up blueprints and plans from a database and extract

[29] Its underlying technology was intended to help soldiers quickly learn an area's layout for operations.

information for their written reports. Through this mechanism, students could share their knowledge from the INF experience and collaborate to co-create a shared representation of reality. Kate Nash addresses this aspect in a recent piece seeking to define interactive documentary experiences.

> I propose that the nature of documentary is such that a fourth dimension is required in order to capture the significance of interactivity. Fundamental to the culture of the documentary form is what Nichols [11] described as its sobriety: the fact that documentary addresses a shared reality and makes statements that bear a truth-claim. [50]

Achieving this shared representation of reality becomes imperative in the digital form. In turn, the development of effective interactions that allowed individuals to express themselves freely, with agency, to give testimony or bear witness became more common. It allowed for communities of users to interact with one another to identify a shared reality, and in turn create knowledge

2.4.2.1 Creating Knowledge through the Interactive Documentary Voice

Documentary scholar Stella Bruzzi defines documentaries as "performative acts whose truth comes into being only at the moment of filming" [51]. Reframing Bruzzi's statement, IN experiences, are performative acts whose truth comes into being only at the moment of interaction. When an audience begins interacting with media affordances to construct a representation of reality through an INF, they construct an identifiable actuality

that can create knowledge. Interaction becomes the mechanism by which the documentary voice is exercised.

Sandra Gaudenzi defines the documentary voice as participation through a user's interactions with the documentary material. Gaudenzi views the participant as a subject already within the documentary, "playing an active role in the negotiation of the 'reality' being conveyed […]" [49]. In the documentary voice as participation, multiple users can interact with the documentary material through their interactions. Their combined knowledge is produced through participation and interaction, through and with an INF experience, and held as a shared representation of reality.

Kate Nash proposes that interactions can lead to polyvocality, many voices constructing an argument. Negotiating meaning or narrative of an event within the community in this way can be a politically powerful process [52]. It can leard to identification. The process brings the disparate sub-communities together to participate with one another to create an identifiable people's history. The value does not necessarily come from the creation of an external project, but the relationships built and restored through the documentary voice as participation.

2.4.2.2 Performing Knowledge atop Procedural Rhetoric

On computational platforms, INF's creation of knowledge through the documentary voice as participation has to grapple with the influence of procedural rhetoric. Ian Bogost defines procedural rhetoric as,

> […] the practice of using processes persuasively. More specifically, procedural rhetoric is the practice of persuading through processes in general and computational processes in particular. [53]

INF's platforms constructed from code operate by a technical set of rules that govern what users can and cannot do. In a NF setting, the rules may moderate how a user gives testimony, how they engage with documentary material, how they witness, and how they explore an INF environment. Further, procedural rhetoric impacts how users identify with one another and the argument of the INF experience. The rhetoric's influence is pervasive because of the built-in processes it facilitates. Subsequently, the truth claims procedural rhetoric makes are easily identified. As Nash opines,

> Through repeated explorations, it becomes possible to identify patterns in the way the simulation works and from there become aware of the documentary's truth claims. [50]

When the simulation is a singular experience, a user discovering how a simulation works may be a source of frustration or epiphany for them. Both moments might be persuasive for identification. However, when the INF experience is participatory, where people are working together to co-create a representation of reality, procedural behavior may become oppressive. They may identify in unintended or unexpected ways. For example, when the rhetoric is tightly constrained, these IN experiences may purport a more cohesive truth but also limit potential critiques as the experience makes it argument through a representation of reality. This obstruction may cause a very narrow identification that is

oppressive to others. For example, the Orange Revolution in Ukraine was broadcast to the international community as a popular uprising. However, this was due to the media-savvy of a small number of activists who were able to manipulate the procedural rhetoric of social networks better than their opposition [54].

Paulo Freire's words on the effect of state structural injustices underscore the potentially severe impact of procedural rhetoric. Namely, the way it shapes interpretations of reality.

> Functionally, oppression is domesticating. To no longer be prey to its force, one must emerge from it and turn upon it. This can be done only by means of the praxis: reflection and action upon the world in order to transform it. [55]

Procedural rhetoric, especially on social networks, facilitates a particular kind of reflection that is an action that transforms the world. A piece's procedural rhetoric runs counter to the contemporary spirit of INF [50] if implemented in a narrow, oppressive manner. More often than not documentary facilitators are seeking a plurality of ideas and stories instead of constrained experiences [56]. Sara Raffel, “identifies the need for ever more complex procedural rhetoric to underlie those narratives and create the meaningful interactivity participants crave.” [57]

A common critique of procedural rhetoric is that it does not take into account player agency. This statement is an important distinction for participative INF. Not recognizing the user, "means ignoring the single most important ethical and political, and creative element of the game: the values and opinions and cultural presence of the player who

engages in play." [9] It is this user and their ethical, cultural, and political opinions that become the testimonies and engagement with participatory INF. As game scholar Miguel Sicart has said,

> Her politics. Her body. Her social being. Play is a part of her expression, guided through rules, but still free, productive, creative. Without the openness of play, the player cannot express or explore their ethics, their politics. [9]

This so critical in the act of participating with other users in an INF experience. Freedom of expression through play and performance is hindered without openness and trust on a digital platform. Any knowledge that gets created is the result of rhetoric.

The documentary voice as participation allows participants to shape a process and NF story that breaks free of procedural rhetoric's constraints [50, 9]. This voice occurs through expressive play and performance, of creating with one another through and with constraints, but also using those constraints in unexpected ways. When Nash discusses the documentary voice as participation, she refers to a similar ambiguous space of interaction as deliberation through the documentary process to represent reality.

> Attention to the conversational and relational dimensions of interactivity builds on the analysis of the technical dimension by considering users' positions in relation to the documentary: how users are addressed, how they are invited to participate in the documentary and the types of the communicative environments created. [50]

Not speaking directly to procedural rhetoric, Nash recognizes INF experience as a superstructure above the technical. It is something innately related to the technical but at a higher level of abstraction because it involves the user and their actions in combination with others.

Building upon Nash—putting her in conversation with Bogost and his critics [9]—procedural rhetoric shapes the participatory process but affords a communication environment that enables freedom of expression through play and performance, both against the code and outside of the computational experience. The ability to leave computation, or break its rules for play, to create with one another beyond the bounds of the screen, relegates procedural rhetoric to the floorboards of the performance stage for a documentary voice as participation.

The use of these affordances—how a participant interacts with the interface and the subject matter—is an interaction paradigm that results in a spatial-visual argument (in XR) for identification. This construction is how the participant identifies the documentary subject. It is also, in a participatory workshop, a proposal for how reality should be represented. Subsequently, the interaction paradigms that lead to that representation are rhetorical lines of argumentation. For participants, these lines of argumentation are the documentary voice as participation. They are the interaction paradigms by which participants can shape an identifiable representation of reality.

2.4.3 *The Rhetoric of Polyvocal Epiploce*

A participatory documentary voice utilizes the rhetoric of polyvocal epiploce to create knowledge through its representations. Epiploce, means the stringing together of statements, each more striking than the last[30]. It is meant to clarify knowledge that is gained from a series of statements, and to draw the audience's attention to a particular end. Sandra Gaudenzi has referred to INF experiences as relational objects, they "allow direct engagement with the reality that they portray and that therefore create new epistemologies" [58]. The way in which participants use their participatory documentary voice to create knowledge is by connecting their statements with one another into particular

[30] It differs from the rhetorical figure of the bandwagon argument in that it is not the quantity of statements but how they are constructed and connected with one another.

representations of reality. Each new personal narrative added to the INF expands its argument and clarifies an identifiable representation of reality.

As participants co-create with one another through an INF platform, they clarify

Figure 13 Where Thoughts Go, an example of polyvocal epiploce.

each other's knowledge with statements, each more striking than the last. Take the VR experience, *Where Thoughts Go* by Lucas Rizzotto in Figure 13. In the INF experience, users leave anonymous messages as little floating orbs. Users can pick up these orbs to listen to them. Users can then create their own in response. This layering of testimonials is polyvocal epiploce. Each statement gets plaited with the last into a co-created representation. Each new interaction with the orbs results in unique stories knit together one by one. A user can return again and again to leave their own thoughts. This is polyvocal epiploce. It is a rhetorical figure innate to the participatory INF experiences and the documentary voice as participation.

This section covered a lot, but there are two aspects the reader should take away. The first is that participants in an INF experience participate within the medium and through it to develop identifiable representations of reality that can create knowledge. Within the medium, refers to the interaction between the individual and the interface; through the medium, refers to how people co-create with one another on the platform. The latter relies upon social relationships and dynamics. While media affordances, the design of interfaces and procedural rhetoric, constrain the first; the intentions of the documentarian, the negotiations of the participants, and the nature of their interactions characterize the second.

Participating through the INF is where knowledge is created and the process can, through play outside of computation, bypass procedural rhetoric for more expressive control [9]. When these participants identify with one another and the representation of reality they have co-created, they may motivate social action. The three rhetorical moves that come together in a participatory INF experience are realist enargia, the rhetoric of auratic presence, and polyvocal epiploce. Taken together, the collective interactions—testimonials, playthroughs, and other knowledge—are invoked as an identifiable representation. The representations become knowledge that can lead to social action.

2.5 Using the Framework

The four rhetorical affordances discussed in this chapter—the gaze, embedded values, myths of scientific inscription, and the documentary voice—were put together into the Rhetorical Affordances Framework (RAF). The RAF can be used as a tool for critical

analysis and as a design springboard for marshalling the rhetorical aspects of an INF experience. The complete framework is in Figure 14.

The affordances for identification include the source material used in the INF. This material might be physical or afforded through a medium. Both rely on a myth of scientific objectivity or inscription to create knowledge. The gaze is considered by its instrumentality and what kind of values it embeds. The documentary voice is broken down into kinds of interaction and then the specific interactions themselves. For example, a kind of interaction would be the reflexive mode of documentary; the interaction would be creating knowledge through a transparent process that draws attention to how the representation of reality was constructed.

Affordances for Identification		**Gaze**		**Documentary Voice**	
Physical Affordance	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**

Figure 14 The Rhetorical Affordances Framework.

For more specificity, I rely on documentary scholar Dayna Galloway's taxonomy of interactions for INF. She puts forward Expansive and Immersive interactions that can be either Active-adaptive or Passive-adaptive. Expansive interactions utilize networks of users to deliver documentary material and experiences. Immersive interactions are associated with fully-embodied VR experiences. The INF experiences utilize one or both as part of the documentary voice. They use these two modes of interaction in either an active or passive way. The difference between active and passive adaptive interactions is

tied to user agency. If a user feels like they are actively changing the scene, the interactions are Active-adaptive. If the interactions are based off of data the user does not perceive, then they are Passive-adaptive. In the latter, the user does not know how they are affecting the representation of reality.

Figure 15 An INF representation of reality in AR through the protestAR app.

To present how this framework is used, Mark Skwarek's *protestAR,* an INF experience will be discussed. When New York City closed down Zuccotti Park and expelled the protestors during Occupy Wall Street, Mark Skwarek and his team deployed AR protestors to the space [1]. The AR app was a documentary of the Occupy protestors and maintained their activist effort through media representations. In a different iteration, the *arOCCUPY* app facilitated the #ARoccupywallstreet tag as part of a global protest.

Artists from all over the world positioned AR models, stories, and art on Wall Street as part of the experience.

- The Affordances for Identification: Skwarek and his team relied on the physical location and buildings of Zuccotti Park to stage their INF experience. Further, they used physical posters and signs that encouraged passersby to engage with the experience. In many ways they relied on their physical bodies performing outside of the app to get people's attention. For media affordances, Skwarek relied on GPS, computer vision, the Metaio SDK, images and models from activists all over the world.

  The myth of scientific inscription to create knowledge is enacted in connected to affordances of AR. As it was a mobile app, a phone's tools of scientific inscription that display their information via the device's screen were used[31]. Skwarek relies on the affordances of GPS to enable his

[31] This kind of information is what the users take for granted as already being authoritative and authentic. For example, consider how a person's anxiety spikes when their phone's battery usage meter no longer accurately reports information. Alternatively, how a device automatically updates itself to the local time. Individuals rely upon this data, produced via scientific and mechanical instruments, for autonomy and agency in their lives.

These tools include: the mobile device's camera for computer vision, GPS for location, weather data, the current time and date, its connection to a network or other devices, health and fitness data provided by the accelerometer, the phone's position in physical space, audio captured by the microphone, how many times its screen has been touched, how long it was awake, alive, and how much battery it has left. The perceived objectivity of each of these instruments within the phone can be used to support the identifiability of an INF experience. They provide a foundation-of-fact used in argumentation.

participants to locate their representations at the right location. He included directions and latitude and longitude coordinates on his site. The app relied on using this data accurately to situate its rhetorical representation. Computer vision then enabled participants to see the AR content and have it occlude the physical environment.

- Gaze: The gaze in the *protestAR* experience is a digital-shared-feminist gaze. It is a shared gaze in the manner discussed by bell hooks. Participants used their situated knowledge to create representations of reality that reflected their attitudes toward Wall Street. Skwarek facilitated the process but participants co-created the final experience. Lastly, the entirety of the experience occurs through a gaze in reality media as the technology relies on computer vision and optics. The gaze is most certainly digital.

  These optics enable the participants to use their shared gaze to make a collective comment upon their subject, income inequality and Wall Street's malfeasance. Each representation that was sent to Skwarek or was posted individually by artist-activists contained their own values. These images included occluding the New York Stock Exchange with a

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By computer vision, I'm implying all of its affordances such as plane-detection, object recognition, image recognition, facial recognition, spatial mapping, and any other algorithmic process that relies on the camera's optics to produce a representation or interpretation of the physical environment.

gambling machine and putting the *Charging Bull of Wall Street* in a cage. Participants constructed these representations in a way that intentionally and explicitly represented their values. As such the direction of the gaze is shared, feminist, and digital.

- The Documentary Voice: Participants engaged in the *protestAR* experience through a documentary voice as participation. Their representations, taken collectively, are a rhetorical response to the issues surrounding Occupy. Their representations of reality derive physicality from both their performance space (Zuccotti Park) and the source material (digital and physical) used in the participatory process. A user experienced each participant representation, one after the other, as they walked along the street. This engagement uses the rhetoric of polyvocal epiploce to create knowledge. Each individual representation is knit together by a user's movement into a potentially identifiable representation of reality. These are the key Techniques of Engagement used as part of the experience's Documentary Voice.

The documentary voice for *protestAR* uses expansive interactions in an active-adaptive manner as its Modes of Engagement. The experience is expansive because the content comes from a variety of different uses. It is active-adaptive because users co-created the experience and a user's movement through physical reality facilitates their understanding of the material.

Taken together, all of these aspects in the RAF can be used to analyze what affordances a NF experience, digital or otherwise, utilizes to create a representation of reality that motivates social action. The framework outlines the design affordances used for creating knowledge, both physical and mediated. It addresses which kind of gaze is being used to embed values in the experience and whether it is live (as in on the street) or through a medium. Lastly, the documentary voice defines the kind of interactions that facilitate the INF experience's content and the specific interactions themselves. The framework is used throughout the next chapter to derive insights into the rhetorical affordances of INF experiences through historical case studies.

CHAPTER 3. HISTORICAL CASE STUDIES

Non-fiction practitioners rely on emerging media as part of their tradition. The affordances of emerging media are used to create new logics for representing reality. These new logics are meant to achieve NF's goals of creating knowledge and motivating action in relation to what has been represented. To achieve these ends, NF practitioners have engaged a wide range of storytelling methods focused on community, from the performing arts and theatre to documentaries and computational propaganda. This chapter presents a history of case studies where NF practitioners have utilized the affordances of emerging media for rhetorical and didactic goals.

This is an interrupted history: one that comes in waves of both emerging media technologies and social action [59]. Each case study explores how practitioners of INF have used emerging media affordances to create identifiable representations of reality to motivate social action. These same case studies were used as models for the reality media mobile app and Interactive Non-fiction Workshop (INFW) discussed in this dissertation. To derive insights for that workshop, each case study is explored through the Rhetorical Affordances Framework (RAF) in Figure 16. The case studies exist in a scatterplot history of media experiences charted from the 1920s to the present day.

Affordances for Identification	**Gaze**	**Documentary Voice**

Physical Affordance	Media Affordances	Live or Mediated	Direction	Modes of Engagement	Techniques for Engagement

Figure 16 The Rhetorical Affordances Framework

3.1 Reading this History

This diachronic history of NF forms proceeds through four phases. The first begins in the 1920s, when there is a shift from media as entertainment to a form for critical reflection; the second starts mid-century in the 1950s, when there's a turn to critical reflection through media as a form of social action; starting in the1980s, there is a shift to collective intelligence as social action. The last phase, from 2005 until now, involves cultural production as the performance of social action.

The first phase coincides with the initial combinations of documentary footage and material in documentary theater. The second phase roughly corresponds to the advent of the camcorder, handheld video equipment, and television. The third phase begins with the invention of the personal computer, relies on computation, and carries on through the internet to the very first social networks. The final phase includes emerging reality media, the web 2.0, and social networks in their contemporary form. In Figure 17, the diachronic history of Non-fiction experiences is visualized. It highlights the pattern of critical media junctures that have provided new logics for representing and interacting with reality. Each phase in the figure stacks atop the previous phase to illustrate the history. One can still find docudramas and mockumentaries and popular documentary theater today. Similarly, groups such as Theater of the Oppressed NY and the Newsreel Collectives continue to

produce work that engages critical reflection and deliberation as a form of social action. Each section is separated into mainstream and radical examples. Insights from the latter influenced the design of the dissertation's workshop.

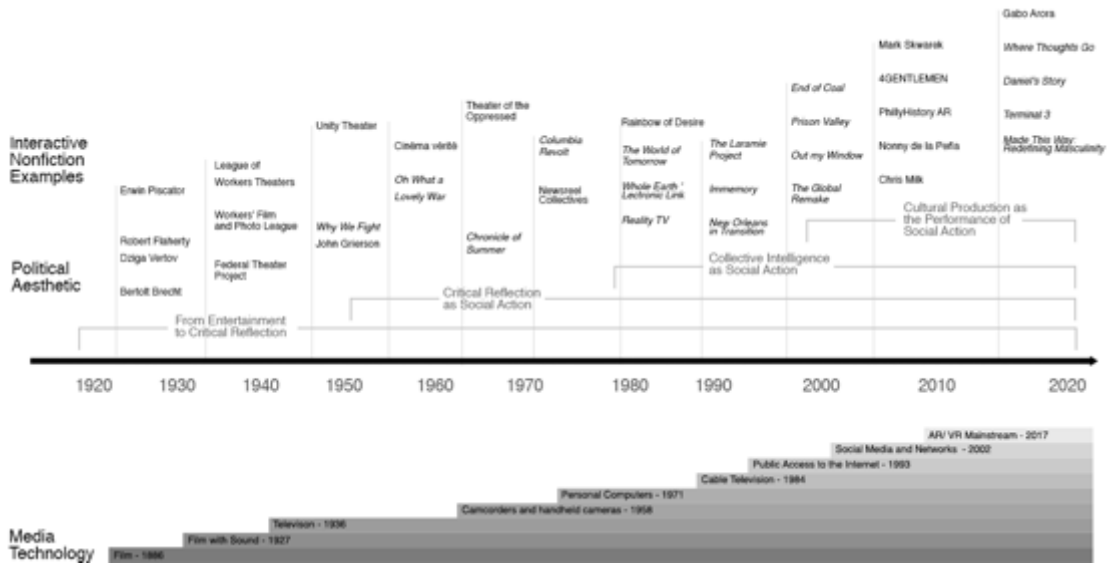

Figure 17 A diachronic history of critical cultural junctures with media and interactive non-fiction

1.1 From Entertainment to Critical Reflection (1920 – 1950)

A turn from pure entertainment to critical reflection began at the onset of the twentieth century. This is when Bertolt Brecht and Erwin Piscator began developing their Epic Theater. At the same time, Dziga Vertov, Sergei Eisenstein, Robert Flaherty, and John Grierson began to document the world around them with their cameras, effectively becoming the first film documentarians.

3.1.1 *Mainstream Non-fiction from 1920-1950*

Beyond the rare independent documentary studio in the early 20th century, governments produced documentary newsreels for the masses. The material was used to both educate and unify a nation's people. The state's choice in directors and methods reflected those in political power at the time. For example, at the behest of a young Soviet State, Dziga Vertov produced his earlier agitprop films.

In political theater, scenographers and dramaturgs began to use both government and independent film reels and photographs to bolster their arguments with positivism. Storytellers used the state media to make their work identifiable to audiences. They used the documents as foils, presenting new ways to engage and reflect on reality.

3.1.1.1 Mainstream Theater in the Weimar Republic and the United States

In the young Weimar Republic, theater was musical, heavily produced, and meant to transcend everyday life. In Berlin, the theater scene was marked by a sparkling cabaret life[32]. Shows were nothing short of distraction to escape the social reality. The focus was on revelry and dancing, not reflecting on reality. Before WWI, the cabarets were censored from engaging in political works. After WWI, censorship was dropped, and comedians skewered all aspects of the political spectrum. In the 1920s, Hitler's mannerisms were

[32] Nominally, the cabarets took place in clubs and restaurants, not traditional theaters, and included a procession of dancers, comedians, and singers.

mocked [60]. What was missing, as commented on at length by Bertolt Brecht, was any sense of critical reflection.

Michael Blankfort, in a series of articles, claimed that bourgeois theater of the time had three goals: purgation, sublimation, and consolation [61]. In summary, the elimination of emotion, the transference of an audience member's anxiety over their socio-economic condition to that of the play's conflict, and then the interpolation of a solution through the dramatic analogy on stage. By example, a poor worker uses magic to marry a wealthy CEO's daughter and ascends the ladder of capital to lounge in leisure. The same was accomplished in the cabarets through the routines of comedians and satirists. Such experiences were the illusions plied by the bourgeois theater, both in Germany and in the United States, to avoid the social reality of the time [62].

3.1.1.2 Mainstream Documentary Film in Russia

In 1921, an English visitor named Huntley Carter wrote this of the Soviet films, “Perhaps never in the history of civilization, has a mechanical contrivance been used more successfully under exceedingly difficult conditions to assist in the construction of a new nation” [63]. By 1925, Soviet cinema became a critical public institution [64]. Documentarians sought social change through propaganda and indoctrination through the armament of a new ideology and the emerging medium of film.

The avant-garde documentarians of the 1920s included a wide range of Marxist practitioners. These included Dziga Vertov and Aleksandr Medvedkin in Russia and groups such as the Workers’ Film and Photo League in the USA. The groups approached

the task of social change through the emerging media of film in two very different ways. Vertov and Medvedkin began their work with a state-mandated ideological purpose. Vertov adamantly believed that the Communist view of the world should shape cinema[33]. This perspective was the only way to see through the illusion of the real world and uncover the raw material of life [5]. Through their agitprop trains, the documentary films spread the ideology of Communism[34]. Vertov and Medvedkin arrived at the rural Russian villages always as outsiders, heroic modernizers from Moscow. The documentarians' media technology, the film cameras, and projectors they brought along validated the authority that the politburo had vested in them.

Vertov's intrusive Kino-Pravda captured and knit together representations of reality that identified communism's benefits with his audience's values. He avoided filming the bourgeois locations preferable to the mainstream audience of his era. To maintain an "empirical authenticity," he abstained from recreating historical scenes until later in his career. Instead, he chose to focus on the germane lives of peasants to capture his impression of a more authentic reality. He often did not film with permission and did not engage in

[33] An honest understanding of Vertov recognizes him as an astute media scholar obsessing over his chosen medium. In one of his manifestos on cinema, he proposed to "blow up cinema, // For // CINEMA // to be seen." Vertov sought a complete understanding of the affordances of his medium. The detailed and forceful nature of his notebooks and essays attest to this. Vertov fervently believed that documentary film could be used to affect social change for the state.

[34] Specifically, they pontificated upon collectivization and the first Five-year Plan [8].

dialog with his subjects. The actuality he constructed was of his design, a layering of images that he designed to be identified by his audiences.

Esfir Shub, a self-proclaimed pupil of Vertov, produced some of the first compilation documentary films. Sergei Eisenstein's *Battleship Potemkin* (1925) inspired her, and she developed three films that were remixes of home movies, early newsreels, and other documentary material. These were reconstructions of recent history produced by one individual embedding Communist values via their authorial gaze. Her well-known films were *The Fall of the Romanov Dynasty* (1927) and *The Great Road* (1927). They were widely successful. It might be no surprise then that Shub's students who emigrated to the United States used her methods to create "synthetic documentaries" [5]. The *Why We Fight* series funded by the U.S. Government utilizes her method of rapid montage filmmaking.

3.1.1.3 Mainstream Documentary and Newsreels in the United States

The Committee for Public Information (CPI) was established by the U.S. Government to produce documentary content during the first World War. From April 14, 1917, to June 30, 1919, it used every possible medium available to create enthusiasm for the war effort [10]. The chairman, George Creel, stated,

> We did not call it propaganda, for that word, in German hands, had come to be associated with deceit and corruption. Our effort was educational and informative throughout, for we had such confidence in our case as to feel that no other argument was needed than the simple, straightforward presentation of facts. [10]

Which is to say that the content being produced was in fact propaganda, a form of NF. Creel believed it was the government's duty to make the facts. This is a common feeling among the documentarians of the day, such as John Grierson [5]. It is how the state embedded preferred values into media.

In the twenty years that followed, the film and documentary industry in the United States was not a bastion of free speech. In 1915, the case that enabled the government to meddle in the affairs of Hollywood was *Mutual Film Corp. v. Industrial Commission of Ohio* [65]. In a unanimous decision, the court decided that the motion picture industry did not receive the same right to the freedom of speech under the First Amendment. The court, which at this time had little experience with the medium of film, noted that bad actors could use the media for evil.

> [Motion pictures are] not to be regarded, nor intended to be regarded as part of the press of the country or as organs of public opinion. They are mere representations of events, of ideas and sentiments published or known; vivid, useful and entertaining, no doubt, but […] capable of evil, having power for it, the greater because of their attractiveness and manner of exhibition. [65]

This court decision enabled the government to violate a practitioner's use of the medium's capacity for freedom of speech and expression. It facilitated the censorship of script production and where the final films were distributed [66]. In turn, this enabled the state to maintain the embedded values in films distributed at home and abroad.

In the late 1940s, through Operation Mockingbird, the CIA began recruiting American news organizations and journalists to become spies and disseminators of propaganda. *The Washington Post* became a major CIA player in the 1950s. Eventually, the CIA's media assets included ABC, NBC, CBS, Time, Newsweek, the Associated Press, United Press International, Reuters, Hearst Newspapers, Scripps-Howard, Copley News Service and more [3]. By the CIA's admission, at least 25 organizations and 400 journalists became CIA assets during this period. In 1950, President Truman launched the Campaign of Truth against Soviet propaganda and officially weaponized the truth. This radical departure in communication for the government enabled them to embed strong democratic and neo-liberal capitalist values. At the same time, they utilized NF films to attack peoples and ideologies that ran counter to the preferred values of the time.

This filmic critique of society was occurring as Hollywood was entering its golden age. The newsreels of WWII gave way to the first feature films about Americans at war. Some films during this period portrayed the American soldier as the quintessential hero, battling it out against the odds, superior in every way to the country's allies and enemies. After the war, the intelligence community had established connections through Mockingbird and worked to ensure that Hollywood presented the idealized version of America to citizens at home and abroad [3]. Documentary during this period was not critical and was unreflective on the nature of the state. Almost the entirety of documentary films during this period were state- or institutionally-funded. They actively maintained state-sponsored stories that identified the American ideal as reality. The material was

pedagogical. In Table 2, a selection of the Motion Picture Production Code illustrates the way the government and industry redirected critical reflection in documentaries [65].

Table 2 A Selection of the Motion Picture Production Code (1930 – 1968)

Don't Show	Use in Good Taste	
The illegal traffic in drugs	Sympathy for criminals	Sedition
Scenes of actual childbirth	Man and woman in bed together	The institution of marriage
Miscegenation	The use of the flag	Surgical operations
Sex hygiene	The use of firearms	Police interrogations
Ridicule of the clergy	Depictions of police	First-night scenes

3.1.2 *Radical Interactive Non-fiction from 1920-1950*

With governments as the power brokers and gatekeepers of embedded values, avant-garde filmmakers and documentarians sought to encourage critical reflection. These individuals sought to utilize emerging media to elevate the lives of laborers and the poor in their communities. Given the period, economic inequality and the fight for just working conditions was paramount.

There was a concerted effort on behalf of the government to provide access to cultural institutions and the arts [67]. In the states, this occasionally pitted New Deal elites against the more radical labor movement [67]. The former was the Federal Writers' Project and the Federal Theater Project, and the latter were ideologically-aligned groups such as

the Workers Film and Photo League and the League of Workers Theater. Bertolt Brecht and Erwin Piscator inspired these later groups when they brought their epic and political theater methodologies to the United States when they fled Nazi Germany.

3.1.2.1 Bertolt Brecht, Erwin Piscator, and Epic Theatre

Bertolt Brecht and Erwin Piscator were coming to prominence after WWI and during the rise of the Nazis in Germany. The social inequality and violence in the streets cannot be discounted[35]. Simultaneously, Nazi propagandist Joseph Goebbels staged large public funerals of Nazis killed by anti-fascist actions. His NF performances involved the "usual mix of sacrifice and martyrdom to stir his followers' patriotic blood." [68] Piscator and Brecht sought to encourage critical reflection as social action, not enflame blind and dangerous passions[36].

The workshop described in this dissertation is partially inspired by Piscator's use of state documents, grassroots participation, and media projections. Brecht's use of abstraction and tactics of alienation were less influential[37]. Erwin Piscator sought to take

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[35] In 1930 there were 23,946 demonstrations that drew 25 million people [68]. Further, violence erupted during this period with 351 reported clashes between national socialists and anti-fascists over three months in 1932 [68].

[36] They ultimately did not succeed in Germany. Eight years later, in 1941, Brecht and Piscator fled to New York City.

[37] Bertolt Brecht primarily relied on aesthetic tactics in an effort to make the familiar strange to his audiences. It was his naïve hope that this would inspire a social and critical response. I believe that rhetorical and didactic methods of representing reality are more effective. Piscator felt the same and this is why his work was more influential to the development of the workshops.

theater to the streets as a form of agitprop. His work, which engaged workers instead of professional actors, went into neighborhoods and community spaces to perform. Piscator used theater as a weapon of the revolution

> I considered it a necessity to work with people who, just like me, saw the revolutionary movement as the driving force, the engine of their creation. To me, the whole idea behind the proletarian theater revolved around the building of a community that would be human and artistic, but also political [69].

Piscator was the first stage director to logically employ emerging media and engineering to achieve this theater [70]. In his production of *Schwejk*, he used mechanical stages, conveyor belts, and documentary images to engage the social consciousness of his audiences [70]. Piscator exploded theater as entertainment and rearranged the pieces as a tool for social reform. Through his conversations with Bertolt Brecht, this drive to represent social issues through realism became epic theater.

Bertolt Brecht and Erwin Piscator held similar ideologies toward their epic theater, but Brecht focused on building an aesthetic. Piscator threw himself into stage production, creating the NF theatre form, Documentary Theater. Another significant departure, commented upon by Brecht, was Piscator's reliance on media technology and production instead of the individual actor’s craft. For Brecht, imparting social awareness and the sought-after social change was not imparted to the audience through the design of the stage and implementation of media. Brecht speaking of Piscator said, "He obviously thought it was easier to solve certain aspects of a theme by means of ingenious production design

than to rely on the variable quality of an actor's performance" [71]. This split is in the RAF between the physical and mediated affordances for identification. Brecht's approach encompasses the physical affordances, which encompass the actors' bodies and how they comport themselves. The media affordances, what Piscator intentionally used to significant effect, came from his principles for documentary theater:

1. The use projections of actualities to which the stage action refers.
2. Quotations from printed 'documentary' sources projected or inscribed on a variety of media.
3. Directly address the audience from the stage or a loudspeaker.
4. Performers may use music and song in order to provide an ironic element of critique.
5. Performers may utilize Brecht's alienation tactics in order to play several roles, rather than a single naturalistic 'character.' [72]

Brecht believed that the performer on the stage should model a "new man," one that was able to reflect on their actions critically [71]. The actors should perform the play, not mechanical or media devices. Indeed, even though Brecht comments at length on the relationship between the performance and the audience, he never moved his experiences past the proscenium. However, in keeping with his disciplined aesthetic, Brecht demanded the stage behind the curtain be minimalist. Brecht's tactics of alienation, *verfremdung*, were implemented to achieve his version of epic theater.

This period of INF sees the development of a trend toward socialist realism as opposed to the cabarets and state-funded dramas of the Weimar Republic. Piscator and Brecht set the groundwork for theater that engaged with social reality instead of seeking to transcend it. Further, Piscator employed actual workers as part of his theater, a move that paved the way for a participatory storytelling process. Brecht focused on the construction of his naïve aesthetic instead of engaging directly with his audience. When the two fled to New York City during the Nazis' rise to power, Brecht was critiqued by his more radical contemporaries for his lack of participatory storytelling [61]. As scholar Douglas McDermott quips, Brecht's theater was considered by some to be, "New wine in old bottles" [61].

3.1.2.2 The League of Workers Theatres

Brecht and Piscator were set up in The New School's drama workshop where they had encounters with radical American socialists. One such group was the Workers Laboratory Theater, from which the more prominent League of Workers Theaters (LWT) was formed. This loosely knit group was composed of a variety of radical socialists in the theater scene at the onset of the Great Depression. They were united by the belief that performance could bring about social change. If they could clarify the nature of capitalism for the worker, they felt they would be able to overthrow the capitalist system[38].

[38] LWT directors feared that the overbearing details of life complicated the oppressive mechanisms of capitalism. They attempted to present the mechanisms both plainly and abstractly. By example, their

In the tradition of Piscator, many of the actors and dramaturgs had no formal training and believed that anyone could become an actor. Additionally, they relied on Brecht's tactics and theories of alienation to find a useful mode other than realism. They sought to present abstractions of oppressive structures that could be accessible and identifiable to their audiences. Their practice was a synthesis of the two masters. The workshop described in this dissertation was inspired by LWT's use of classrooms and educational settings, roleplays, grassroots participation of workers and students in performances, coded insider language, and location-based performances[39].

The LWT developed "shock troupes" that engaged in the form of invisible theater. These would be four or five worker-actors who could be called upon at a moment's notice to perform an LWT piece, in public or on the factory floor. They referred to this form as a "mobile theater," as it did not rely on a proscenium arch. One LWT group, the Red Dust Players out of Oklahoma, had this to say about their mobile theater:

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performances would not have a boss with a given first and last name, but instead, a character simply named BOSS. Another character might be named POLICE, and so on. Characters were often allegories of economic or social functions. Beyond the need to abstract reality to make it more comprehensible, the LWT found individualization bourgeois. That focus on individual characters, their psychological profiles, would lead to self-involvement instead of social consciousness.

[39] The LWT's use of insider-coded language inspired this dissertation's mobile app to use the community's culture as material for their representations as part of the workshop. Similarly, their location-based performances influenced the design of the mobile app. The affordances of computer vision and location-awareness are utilized by participants to modify the physical setting of the workshop for their representations of reality.

> Another place it was a country church; we had to go around and collect the audience; they had no transportation. We'd bring one batch and they'd sit and wait while we went for another car load […] Most of them had never seen a movie, let alone a play […] some of the people came up and wanted to touch Tilly to see if she were real or a doll [16].

The recollection echoes the work of Vertov and his agitprop trains in the Russian Caucuses. In such scenarios, whether in Oklahoma City, Chicago, or New York, the groups used insider and coded language to create identifiable representations. They then used the newness of the media experience (theatre) to rhetorically motivate action. There was a real effort to break down the fourth-wall to imply to the audience that they "owned" the performance they were seeing; that it came from the community, and more than often it did [16]. In this manner, they sought to embed values that were identifiable.

One of the goals of the LWT was to create a relationship in which the audience identified with worker-actors. One way they did this was to teach theater in schools and in workshops to aid workers' understanding of their labor issues. It was a useful way to embed their values and as a recruitment tool. Margaret Beth Cherne describes a moment in a Bryn Mawr drama class where the students, having expressed interest in drama felt like their own lives were not exciting enough [16]. Under the guidance of their instructor, Jean Carter, they began to reflect on aspects of their own lives to devise a performance.

> For the first time these experiences in the theatre were translated into terms these workers understood. From a silent, diffident crowd [of students], more and more voices claimed attention, until the group bubbled with excitement. [16]

From there, the group of students discussed why their stories, workers' stories, were not identifiable on the mainstream stages. They then devised their plays about joining a picket line, having a guest over but not enough food, and being unemployed [16].

Additionally, two plays intentionally integrated audience participation to motivate social action, *Funny as Hell* and *Waiting for Lefty* [16]. In both instances, actors planted themselves in the audience before the show. Speakers on the stage would directly address the audience[40]. The planted actors in the audience would then rise and move toward those speaking on stage. This tactic was meant to blur the difference between the performance and lived reality in the INF experience. The goal (admittedly through subterfuge) was to inspire other workers in the audience to shout-back and respond in kind. In short, the actors modeled the behavior the workers were expected to enact. It was in this manner that they built a semi-participatory storytelling relationship that sought to move beyond entertainment to critical reflection, and eventually, social action.

3.1.2.3 The Federal Theatre Project and Writers Program

[40] In a manner that paralleled Piscator's dramaturgy.

During this same period, U.S. Government engaged the Federal Theater Project and Writers Program through the Federal Workers Progress Agency (WPA) [73]. The comprehensive effort on behalf of the government employed out-of-work theater laborers. The project brought a wide swath of the American public into the theater space. It was not without its drawbacks, for example writing teams were mostly all white, even for "negro theater," and there was occasional financial collusion with commercial theaters [73]. The efforts were laudable and helped launch the career of Orson Welles as well as others. The group furthered the tradition of Documentary Theater in the states through their Living Newspaper performances.

Under the leadership of Hallie Flanagan, the Federal Theater Project developed a socialist style “Living Newspaper” experience in 1935. The experiences borrowed heavily from Piscator, both in the newspaper mode in which they presented material and also in their use of media, mechanical stages, and projections. Perhaps one of the more effective innovations they included was a live stage image with a “cool and objective” projected image that could be interrogated by the performers [74]. Each region was meant to have its own Living Newspaper to encourage critical reflection on local problems [75].

As sometimes happens, those in political power faced critiqued and embarrassment when the performances addressed local problems. As might be expected, the Federal bureaucracy did not appreciate critical representations of heads of state by the groups they were funding. For example, A Living Newspaper experience that critiqued southern senators' racist attacks on an anti-lynching bill never had an audience for its performance. Sadly, while the Living Newspapers were meant to be staged all over the

country, very few were. This failure was due, in part, to political pressure from an administration that demanded factual documentation of events and control over the narrative.

The WPA's Federal Writer's Project (FWP) employed 6,600 men and women who were writers, editors, or researchers during the Great Depression. Beyond producing encyclopedia guides to every state and territory (except Hawaii), the WPA produced over 1,000 books and pamphlets covering ethnic studies, folklore collections, local histories, and oral histories. While many enjoyed the organization and its publications, conservative politicians took issue with the characterizations of labor disputes [76]. The zenith of these attacks against the FWP and the Federal Theater Project came from the House Committee on Un-American Activities. Federal support for both programs was withdrawn in the 1950s [75].

3.1.2.4 The Workers Film and Photo League

The Workers' Film and Photo League was a secondary effect of an order Lenin gave in Berlin as part of the *Internationale Arbeiterhilfe*, Workers' International Relief organization (WIR) [77]. The WIR existed to provide relief to workers in other countries. Willi Münzenberg headed the operations in Berlin and the United States [78]. They agreed to distribute films abroad from the new Soviet Union. Münzenberg and the WIR held screenings where they showed films on the country's famine. By the mid-1920s, the WIR was not just distributing, but producing, documentary footage for fundraising. One of the star filmmakers was Chicago-based William Kruse. His most successful film, *The Fifth*

Year, brought in $40,000 in relief money during the 1920s ($569,122 in 2018). He would later become the figurehead of the WIR in the United States [79][41].

In the later 1920s, WIR was no longer a charitable wing of the Soviet Union but a multifaceted organization. Some of their most loyal film customers were the workers' film societies that sprang up across the world. The organizations varied in size and impact. In the 1930s, socialist film groups flourished in America leading to the development of the Workers Film and Photo League (WFPL) in Chicago, New York, and San Diego. They showed socialist films distributed through production companies such as Prometheus [79]. The groups were private clubs, which allowed them to bypass censorship laws banning seditious material. This dissertation's workshop is partially inspired by the WFPL's use of filmic media in a way that anticipated a reflexive and participatory storytelling process, their use of filmic grammars to embed values oppositional to the mainstream, and their community engagement.

The WFPL's most significant statement occurred on March 6, 1930, when a Communist-led demonstration of the unemployed jammed New York's Union Square. The

[41] With the success of these relief documentaries, the WIR began to furnish and supply the burgeoning Soviet film industry. Despite Lenin's decree nationalizing the media in 1919, Soviet films competed for foreign dollars and attention. Indeed, there was an open competition in the documentary space [78]. In 1924, WIR joined the Moscow film studio Rus' to create Mezhrabpom-Rus', an organization, "for the joint production and similarly joint exploitation of cinematographic pictures" [78]. Throughout the 1930s, Mezhrabpom-Rus became the premier production house in Russia. Its profits were in the billions of rubles. Within a decade, an order Lenin broadcast from Berlin for worker relief resulted in the development of a successful American documentary relief apparatus that bankrolled the most significant production studio of Soviet propaganda films in the twenties and thirties.

capitalist press minimized the event with newsreels approved by New York City's police chief Grover Whalen [80]. This practice became common in mainstream media as economic woes and unemployment increased. A member of the League wrote this in the *Daily Worker*:

> Films are being used against the workers like police clubs, only more subtly—Like the reactionary press. If the capitalist class fears pictures and prevents us from seeing records of events like the March 6 unemployment protest and the Sacco-Vanzetti trial[42] we will equip out own cameramen and make our own films

Seven months later, the WFPL began working within the New York offices to engage in participatory NF filmmaking with their subjects [80]. The goal was not to compete against Hollywood on its terms but instead to produce brief, topical newsreels that could be edited together quickly. The participation of workers and the timeliness of the material was meant to create identifiable representations of reality. The groups presented the films to small audiences due to the oppressive atmosphere. At the height of the Great Depression, they were able to show films at New York's Acme Theater.

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[42] The trial of two Italian immigrants that murdered a guard and paymaster in 1920. They ascribed to anarchism that advocated warfare against an oppressive government.

Figure 18 Bell & Howell's Filmo (left) and Eyemo (right) cameras used by the Workers Film and Photo League

As part of the worldwide struggle for workers' rights during the 1930s, the WFPL intentionally used films to organize political action [77]. Footage from mining strikes and unemployment marches was edited together to agitate groups along the East Coast and the Midwest. A still from their documentary on the National Hunger March is in Figure 19. They anticipated the techniques of cinéma vérité filmmakers through their use of mobile 16mm motion picture film cameras. Bell & Howell had some handheld 16mm cameras called the Filmo 70 and Eyemo shown in Figure 18. It allowed them to dip in and out of the action and participate in the protests. However, this desire for direct participation was second to their political goals. Engagement in the events made their films identifiable and led to social action. This framing was as vital to them as it was for Vertov.

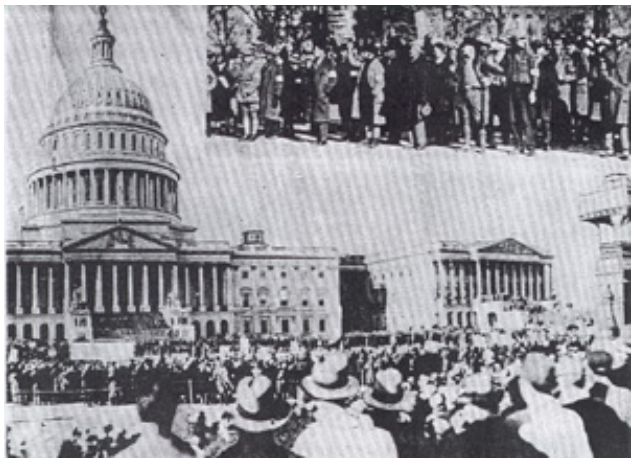

Figure 19 A Still from WFPL's National Hunger March

When Leo Seltzer, in the below quote, states the differentiation between the films shot by the capitalist cameramen versus those participating with the WFPL, he highlights the way in which emerging media used for INF influence how spectators identify with footage.

> Our cameramen were class-conscious workers who understood the historical significance of this epic march for bread and the right to live. […] Whereas the capitalist cameraman who followed the marchers all the way down to Washington were constantly on the lookout for sensational material which would distort the character of the march in the eyes of the masses. Our worker cameraman, working with small handheld cameras that permit unrestricted mobility, succeeded in recording incidents that show the fiendish brutality of the police towards marchers.

The goal for the WIR and the WFPL was to present their perspective on the labor movement as more identifiable than the dominant discourse's media. The WFPL's commitment to using the affordances emerging media to present their perspective on an

event as identifiable underscores the method of Interactive Non-fiction with emerging media.

3.1.3 *Rhetorical Affordances for Non-fiction from 1920 - 1950*

The evolution of using media purely for entertainment into a form for critical reflection took over 30 years. The structures and economics of film production in the early 20th century lent itself to state-sponsored documentaries. As the mainstream media began to ignore the stories of the unemployed and workers during the early years of The Great Depression, INF processes were used to activate spectators. In theater, when the industry failed to address the deplorable conditions of workers, producers turned toward emerging media and participatory methods to encourage critical reflection. The end goal, after critical reflection, was always a social action. However, except for Piscator's worker-performers the worker-cameramen of the WFPL, and the educators of the LWT general communities of spectators did not directly engage in social action as part of the performance.

The RAF framework in Table 3 outlines the various rhetorical mechanisms at play during this period. The workshop in this dissertation was inspired by a number of these. These rhetorical mechanisms include the participation of workers and students, the intentional use of educational settings, the use of state or official documents, the use of insider-coded language, physical space, reflexive and devising storytelling techniques, and roleplays.

Table 3 The Rhetorical Affordances Framework for Non-fiction from 1920 - 1950

Affordances for Identification		Gaze		Documentary Voice	
Physical Affordance	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
States documents Government properties Newspaper clippings Narrators of silent films Orchestra pits for silent films [81] The lives of everyday people and peasants Actors embedded in the audience National government mandates Political or ideological groups	Black and white film Recorded audio and loud speakers Title slides Projected images Panorama Optical effects Remix (synthetic documentaries) Mobile 35mm video cameras Mechanical stages Individuals through oral histories Insider and coded language	Mediated documentaries Live performances Brechtian alienation	Imperial Male State Colonial Oppositional Shared	Passive Passive-adaptive Active	Reading Watching Making belief Roleplays

3.2 Critical Reflection as Social Action (1950 – 1980)

The next phase of NF, and documentary in particular, is marked by the emergence of the camcorder and mainstream adoption of the handheld camera. Additionally, the explosion of mainstream TV news channels enforcing embedded values also had a palpable effect. The censorship of the Motion Picture Production Code was still oppressing filmmakers as was McCarthyism, ensuring the maintenance of values preferred by the state. Whereas in the earlier half of the 40s, Hollywood distributed movies sympathetic to our Soviet allies, the tone shifted dramatically after 1946. Many producers who had films that embedded values positively associating the United States with Russia were blacklisted through the 50s and 60s. In theater, this period saw the advent of the Happenings, public performance, and the participatory and didactic dramaturgy of Augusto Boal and Jacob Moreno.

In the later parts of the 40s and 50s, there was a mainstream focus, in the United States, about what democracy was and what the quintessential American family might be. In her book, *Visions of Belonging*, Judith E. Smith discusses how the media ecosystem promoted the inclusiveness of all peoples in the American family in the 1940s [82]. In part, this was necessitated by the multinational cooperation that led to the success of the war effort. In the 1950s, as the mainstream increasingly presented public demonstrations and civil unrest as unpatriotic, characters and families became whiter, were male-dominated, and always heterosexual. The result excluded minority groups and their experiences from these stories. The values that mattered to them were not embedded [82]. The media ecosystem did not afford their stories the same capacity for identification as those in the dominant discourse.

In response, there was an explosion of inclusivity in the NF forms of documentary and theater beginning in the 1960s. The Civil Rights movement ushered previously invisible stories of heartache, pain, and oppression into the public consciousness. Participation tactics, on the whole, did not change dramatically. What did change was the move away from the stories of laborers and factories to those of women, people of color, native peoples, LGBTQIA culture, and other marginalized communities. In film and television, this shift was palpable in the dramatized and cinéma vérité documentaries broadcast on network television. This observation is not to say that workers' issues did not matter, but the general post-war prosperity in America directed critical attention elsewhere. Other parts of the world did not maintain this attitude.

Figure 20 Augusto Boal speaking with Theater of the Oppressed participants

Augusto Boal's *Theater of the Oppressed* is a didactic performance practice that was initially developed to address the issues of the working poor and peasants in Brazil. Paulo Freire's *Pedagogy of the Oppressed* influenced the process and stressed dialogue and action over passive-engagement. It is perhaps one of the more effective and influential forms of NF theater for communities. Boal is shown speaking with participants in Figure 20. To understand the practice, the atmosphere in which Boal began his work is critical. In many ways, the country paralleled the fractured society of Russia during the Soviet Revolution and America during the Great Depression.

3.2.1 *Mainstream Non-fiction in Brazil from 1950-1990*

Political turmoil had wracked Brazil since its colonization. The country saw many dictatorships, military regimes, and populist uprisings. Since the country's independence, a functioning democratic republic or even a populist government had never formed. It was during this time that the military junta of Brazil sought to control the nation's culture industry and embed values preferred by the state [83]. They did this through censorship, appropriation of the culture industry, expansion of tourism, and social exclusion [83].

The Junta was mostly successful in these efforts due to the introduction of the television. The Junta saw the technology's capacity for identification as a boon. They

developed shows meant to allow viewers to transcend their abject conditions[43]. On TV, the government censored intellectual shows and those with populist themes. Instead, they sponsored soap operas [83]. Further, they shut down other venues of entertainment such as theaters, concert halls, and galleries. The goal was to produce a unilateral media ecosystem in which the state was in complete control of the distributed stories and ideas. In many ways, they sought to use television in the same nation-building manner as the Soviets with their 16mm cameras.

For example, the premier TV station at the time was the Globo TV Network. , and it reached a majority of the country's viewers during this period [83]. The station broadcasted national themes and distractions for the population that affirmed the power of the government. As part of this effort to enforce and elevate the dominant ideology, traditional theatre performances and operas were rewritten by writers for a contemporary audience. The shows took on a realistic tone but never criticized the powerful. National and traditional themes were able to be broadcast safely. The shows reportedly captured and held 70% of viewers' attention [83]. All of this was meant to maintain and elevate the embedded values of the state as identifiable.

Compare this with the work of Boal and Freire: each sought instead to engage in a dialog, develop culture through participatory methods, foster local action, and social

[43] This motivation would have had currency with Vertov and Grierson. They believed the state should decide what the authentic reality was. However, it runs counter to the ideals of Freire and Augusto Boal.

inclusion. Boal's work in this environment was naturally oppositional. To stunt reflection, the Junta used media to distract, to exploit women as part of Carnival tourism, and silence dissent. Boal used media and the concepts of Carnival to motivate his *Theatre of the Oppressed*[44]. Where the Junta wanted complete unilateral control to create an authentic impression of the state, Boal sought and encouraged a polyvocality to question that image and create new impressions. He worked with his non-actors to create a mosaic of stories, using their voices as a form of participation as they negotiated and co-constructed what was identifiable together.

3.2.2 *Radical Interactive Non-fiction in Brazil from 1950-1980*

Brazilian political theater began to find its footing after the 1950s. Boal was the director of the Arena Stage in São Paulo. In the early 60s, the government's aggression forced him to align the theater's performance with his particular politics. He intentionally used the theater for his particular ideological response to the world. His dramaturgy was not just a response to Brazil's military junta, but also the country's national identity. He sought positivism based in an "ultramodern, rationalist democracy" [84]. After putting on an agitprop play promoting revolution, he was jailed through the 60s and then spent life exiled in Argentina with his wife in the 70s.

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[44] For example, The Popular Center of Culture and the National Union of Students, two performance groups, were dissolved [83]. Boal alludes to this when he mourns a popular tradition of Brazilian outdoor theater, the predecessor of his Invisible Theater [18].

3.2.2.1 Augusto Boal's Theatre of the Oppressed and Rainbow of Desire

While in exile, Boal participated in a national literacy campaign in Peru and developed his Image and Newspaper Theater. During this period which included the Peron dictatorship, political theater became dangerous to perform in Argentina, so Boal developed Invisible Theater. When this performative practice also came under attack, he moved to France where he began to develop his *Rainbow of Desire* methodology. This moment represented a change in process for Boal. He began to focus on the internal oppression of Europe (mental illness) instead of the oppression of physical violence in South America. He consistently tailored and evolved his modular dramaturgy to best engage with the oppression of the community in which he was living.

Boal's particular turn to critical reflection as a form of social action is an homage to Paulo Freire. Boal critiqued Brecht's work because it did not go far enough to activate spectators. He aligns the Brechtian method with the Banking Method of education lambasted by Freire. To support his critique, Boal asks his readers to observe the theater audience carefully. First, spectators are seated in a theater in which ticket prices create a social hierarchy. Second, Boal believes an illiterate or under-educated audience will not recognize the abstracted social forces on stage. They would not be identifiable to them. He sees Brecht's work as positing a riddle of alienation before the audience who has to dissect the social forces out of the protagonist. For Boal, Image and Invisible Theater were ways of bypassing this intellectual work, to instead rehearse future social action through role plays and physical theater exercises.

Boal's tactics for activating the audience are rehearsals for future political acts [7]. There is a necessity to create an identifiable representation of reality on the stage. Boal's tactics all involved the performative manipulation or coordination of documentary material in achieving a co-created performance of a real event with his audience. He called this an aesthetic space in which the dichotomy of the reality and the mainstream medias' stories could exist simultaneously for interrogation. Take, for example, Invisible Theater, which places actors among non-actors in a public space. The actors engage in a conflict directly related to that space and thus draw in other non-actors. This is a coordination of reality that establishes a performative actuality[45].

Consider his tactic of the "Joker," wherein a non-actor participant interrupts the action to give new stage direction in the scene. The non-actor has to react in kind, role-playing and embodying the behavior as directed by the Joker. The scene portrayed always has some basis in reality, but the Joker's directions highlight for the audience an aspect of this same lived experience that they otherwise may not have noticed. It was in this manner that Boal uses polyvocality and the documentary voice as participation to invoke identification in his scenes. It is an intentional and rhetorical practice.

Lastly, Boal recognized that many of the peasants in his audience were not familiar with the performing arts of his time and so used non-theater material to integrate them into

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[45] This combination of reality and performance is very similar to the work of the League of Workers Theaters in *Funny as Hell,* but it takes place on the street instead of a stage.

the participatory process. For example, he used photographs and asked his audience to create photo-plays out of them by re-ordering them into a story. This mixed-media participatory method allowed for even the illiterate to engage in Boal's process.

Inspired by Boal, this dissertation's workshop relies on a number of his tactics and mechanisms. Primarily, the workshop utilizes the theater games of both Theater of the Oppressed and Rainbow of Desire to develop moments of intense, constructive dialog on how an aspect of reality should be represented. Boal relied primarily on music, newspapers, and photographs to support these performative dialogs. The dissertation workshop does the same but with reality media. Further, the dissertation employs the same grassroots and reflexive storytelling techniques used in Boal's workshops to create identifiable representations of reality. Lastly, Boal's workshops were always directed toward rehearsing for a future action, and so too are the workshops discussed in this dissertation.

3.2.3 *Radical Non-fiction in Cinema and Television from 1950-1980*

In the 1950s, the proliferation of the camcorder and handheld camera led to renewed interest in a participatory process for the documentary form. While often confused, the differences between Direct Cinema, Observational Cinema, and Cinéma vérité highlight the participatory process of the latter. Direct Cinema practitioners make claims about objectivity by being a fly on the wall. They would start their camera rolling and try to be as inconspicuous as possible. The Direct Cinema documentarians would not edit their films or use voiceover. In effect, they hoped their absence would support the

rhetoric of scientific inscription associated with the documentary form[46]. In Observational Cinema, the practitioner still does not engage with the subject or insert themselves in the process. However, these documentarians might include edits and non-diegetic narration. The documentarian embeds values into the film in the same manner as Vertov's Kino-Pravda. They may believe that what they are producing is an objective representation of reality, but the nature of their edits, not to mention the narration, creates an actuality.

Take Frederick Weissman, a famous observational cinema filmmaker of this period. For his film *Belfast, Maine*, he claimed to use only 4 of 110 hours of footage shot [85]. Weismann was meticulous about editing his films together into a particular rhythm of shots to achieve a dialectical rhetoric [86]. Wiseman's authorial voice does not intrude into the observed scene but through the editing together of the argument. In contrast, cinéma vérité places the filmmaker at the center of the experience with their subject. The myth of the form was that what the camera captures is not meant to be edited into a rhetorical point. The footage and subjects are meant to speak for themselves.

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[46] Some documentarians began to produce films that forced audience members to question their veracity at the beginning of the 1960s. A quintessential example is *David Holzman's Diary* (1968). In the film, David obsesses with capturing as much of reality as possible. However, his obsession to achieve a perfect mimicry consistently pushes him farther away from the real and closer to the constructed. Another example is in Michelle Citron's films. She employed, "cv/direct, complete with rack focus, rapid panning back and forth between people in conversation, not having the camera where the action is, natural light, and so forth" to make an identifiable representation of reality in her dramatized documentaries [5]. At the same time, feature films like *Take the Money and Run* (1969), *Punishment Park* (1971), *The Blair Witch Project* (1999) began to use documentary methods to imply objectivity in their fictions.

3.2.3.1 Examples of Cinéma Vérité and Direct Cinema

While not always, cinéma vérité involves the subject in the process of storytelling. They are often aware of the camera, but this is not always the intention of the documentarian. Take for example the two films *Primary* (1960) and *Chronicle of Summer* (1961). *Primary* is a cinéma vérité film that tracks John F. Kennedy through his primary election campaign. There are long uncut shots that were used as visual evidence [11]. The audience follows Kennedy down hallways and around stairs. There are intimate moments, but no one ever speaks to the camera. Compare this tactic to Jean Rouch's *Chronicle of Summer* shown in Figure 21. The film introduces audiences to the Parisian filmmakers and those they interview. Each of the interviewees is asked, "Are you happy?" Their responses and opinions are edited together to, just like Vertov, uncover a polyvocal representation of reality. Indeed, Rouch believed his form was a combination of Flaherty and Vertov. Unlike *Primary*, *Chronicle of Summer* is in direct dialog with its subjects. In part two of the documentary, interviewees respond to seeing themselves on film and extend the dialog between the documentarian, the artifact, and the audience even further. The transparent view of the process on film is used rhetorically to create and validate knowledge.

Figure 21 A still from *Chronicle of Summer (1961)*

At this time, the documentary form was a highbrow pursuit, and feature-length non-fiction films rarely broke through the noise. One exception was Barbara Kopple's *Harlan County (1976)*. The film detailed the Kentucky mineworkers' strike in 1973. It is the only documentary film to play the New York Film Festival, win an Academy Award, and get listed on the National Film Registry. It marked an evolution of the documentary direct cinema films of the period [87]. In order to claim objectivity, Kopple interspersed interviews with archival footage as part of a sizeable dramatic structure. Further, she invokes aura through a soundtrack of local and regional songs sung by Hazel Dickens, "an evocation of rural cultural heritage" [87]. It connects the contemporary themes of her film

with the long battle for labor rights in the county, referencing the initial Bloody Harlan strikes of the 1930s[47].

Keeping with the cinéma vérité tradition, Kopple is there and present in the interviews with the social actors—she does not seek to obfuscate herself. It is an initial step in ethical self-reflexivity that begins to mark the work of future documentaries such as Michael Moore's *Roger and Me* (1989) [87]. It marks an awareness of the documentarian's influence on the story and how they embed their values in their work. That said, Kopple did successfully use her film to direct social action and fundraising efforts around the coal miners and their strike. The effort enabled mainstream audiences to identify with the plight of the miners. One of them, Jerry Johnson said, "The cameras probably saved a bunch of shooting. I don't think we'd have won it without the film crew. If the film crew hadn't been sympathetic to our cause, we would've lost. Thank God for them; thank God they're on our side" [4].

Harvest of Shame, a withering account of migrant poverty in the United States was broadcast in 1960. It was shown the day before Thanksgiving, and it was, "the first time millions of Americans were given a close look at what it means to live in poverty" [88]. Due to his work on See it Now, Edward R. Murrow was recognized by the mainstream as a voice for the oppressed. Murrow was seen as a champion for them, speaking for them,

[47] These same strikes were part of the Workers Film and Photo League documentary on miners' strikes during the 1930s.

but not as them. This positioning is the same as the one Vertov and Grierson struck with their subjects. It utilizes a male gaze, "to shock Americans into action" [88].

All the same, the piece involves direct interviews with Murrow in the frame, voice-over narration, and long takes of both suffering and pastoral scenes. Interviews take place in the homes and fields of the migrants. Their answers, drenched in fatigue and oppression, are harrowing. At the end of the documentary, Murrow lists proposals made by a presidential committee for the migrants, explicitly calling out the opposition, and encouraging the audience to get angry, to call their lawmakers, and to save the migrants. It is a rhetorically powerful denouement. However, before the final credits roll—Marlboro, an employer of migrant labor—is listed as the sponsor of the film [89]. *Harvest of Shame* is a complex mix of embedded values, direct cinema techniques, and use of the gaze. What must be recognized, is its strong rhetorical effect, its consubstantiality: a positive impact on the migrant crisis.

3.2.3.2 Newsreel Collective and Columbia Revolt

Documentarians were integral to articulating opinions about the Vietnam War, and in 1967, Newsreel Collective became a place in New York to see these films. They were a version of the WFPL manifested 30 years later. They desired to use film to tackle social problems. There were collectives in Boston, Chicago, Los Angeles, and San Francisco. They addressed the student movement, the Civil Rights Movement, and sexual liberation. The films were ideologically motivated and most definitely agitprop. One of their most impactful was *Columbia* (1968).

The documentary captured a student occupation of Columbia University. The documentarians were inside the building with the students filming the action as it happened. Roz Payne, a member of the group, said, “Our cameras were used as weapons as well as recording events…[we] had a WWII cast iron Bell and Howell camera that could take the shock of breaking a glass window” [5]. The group thrust itself into the political activities and events happening around them. They used their handheld cameras, just like the WFPL, to capture and distribute their particular representations of reality. They sought to release two films per month and distribute 12 prints to other groups. In the mid-1970s, the group began to fracture as there was little agreement on how radical the politics of the group should be. In the end, the collective split into three branches. San Francisco Newsreel split off to address feminism and issues surrounding female workers; Third World Newsreel focused on Marxist critiques of current affairs, and California Newsreel focuses on black life, media, and U.S. history.

3.2.4 *Rhetorical Affordances in Non-fiction 1950 - 1980*

The emerging media of handheld camera, broadcast television, and enhancements to film technology facilitated the shift to critical reflection as a form of social action. Dramaturgs like Augusto Boal and documentarians like those working with the Newsreel Collective found ways to use the media to tell formerly invisible stories. They were able to use physical and mediated design affordances, male, feminist, and shared gazes, polyvocality, and active audience participation to create identifiable experiences. These invisible but identifiable stories were, in some cases, seen as representations of reality that created knowledge. This is shown in Table 4.

The dissertation's workshop borrows heavily from the performance templates and tactics discussed during this period. As mentioned earlier, Boal's use of media to support dialogic theater games is a cornerstone of the workshop. These games result in representations of reality that are identifiable to the participants. Their participatory development is meant to motivate participants and the facilitator into consubstantiating action. This dissertation's workshop is a grassroots effort wherein facilitators and participants seek to achieve an action with one another.

The way in which media is used as a way of creating knowledge in the cinéma vérité tradition is comparable to reality media's use in the workshop. Reality media's affordance for making present the digital, alongside the physical, as evidence is a continuation of the tradition. Instead of a filmmaker, a workshop participant constructs meaning alongside a device's scientific instruments to situate their XR representation within reality. In the workshops, the myth of objectivity accompanying these same instruments is used in the service of a participant's documentary voice.

Table 4 The Rhetorical Affordances Framework for Non-fiction from 1950 - 1980

Affordances for Identification		The Gaze		Documentary Voice	
Physical Affordance	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques of Interaction**
States documents Newspaper clippings The lives and bodies of everyday people, peasants, migrants, and the working class Actors embedded at locations Stages at warehouses and schools Interactive Non-fiction facilitators/ producers Political or ideological groups	Broadcast and cable TV Recorded audio and music Handheld camcorders Projected images Remix (synthetic documentaries) Montage and rhythmic editing Dramatic structures for non-fiction Constructed or imagined stages	Mediated documentaries Live performances Reality television Docudramas	Male Shared Reflexive Oppositional State	Passive Passive-adaptive Active	Reading Watching Making belief Performance

3.3 Collective Intelligence as Social Action (1980 – 2005)

The third phase begins with the first online community message boards through the 9/11 media landscape. Its emergence is shaped by the innovations of Xerox Parc, hypertext,

and the second generation of consumer personal computers. It is a period that sees the meteoric rise of the internet after the Mosaic web browser, video game platforms, and mobile communication devices. It encompasses the shift from web 1.0, a network of information connections, to web 2.0, a network of people using those connections. It was a time marked by the constant drive to connect, collate, organize, and network people and information. This reverberated throughout popular culture.

Borrowing the term used by Howard Rheingold, danah boyd, and Jane McGonigal, there is a shift to using collective intelligence as social action. Quoting McGonigal, quoting Pierre Levy, “As part of his utopian vision for a more collaborative knowledge culture, he predicted: ‘We are passing from the Cartesian cogito’—I think, therefore I am—'to cogitamus”—we think, therefore we are.’” [90] This was the shift from web 1.0, considered a network of cognition (information) to 2.0, for communication [91]. It is a moment where users begin to think and work together to solve issues. The producer, developer, and storytellers moved from the center of participation to the periphery while inviting others to share their knowledge and participate with one another. It relied upon the internet's affordances to solve and draw attention to problems.

Digital rhetoricians have identified two of these affordances as crowdsourcing and circulation. Circulation addresses the manner in which media move through time and space. Henry Jenkins has referred to this as spreadable media. Early iterations were email and message boards; contemporary examples would be the newsfeeds on Facebook, Reddit, and Twitter. Jenkins believed the shift from distribution to the circulation of information signaled a shift to a, "more participatory model of culture" [92]. There has

been a shift to a participatory model of culture, but the participation is uneven—guided by media corporations [93] and those with access. Jenkins invokes the myth that everyone's participation is equal to invoke pluralist participation rhetorically. In fact, participation online, especially during this period, was not equitable. The rhetoric of circulation can be used to rhetorically claim participation was open, pluralist, and equitable even when structural injustices keep it from being so. Invoking this rhetoric in relation to NF storytelling can give the impression that a story has been created by an entire community. This is not the case. Only those with access to the media contribute to the NF story; only those with access create knowledge.

Crowdsourcing is, "using an online […] model to leverage the collective intelligence of online communities to serve specific organizational goals." [93] Its rhetorical mechanism is the invoked value of the collective's participation and the importance of accomplishing the goal. Although crowdsourcing has existed since 1714 [94], the scope and scale afforded by the web in 1999 elevated the impact of the method[48].

As the web matured, it has been used by some bad actors to influence, scam, and take advantage of others. At the same time, crowdsourcing also enabled open source development, remix, and other media appropriation to positive effect. Its effectiveness relies on the myth that each user in the crowd represents a citizen in the community. As

[48] At this time, SETI@home allowed individuals to donate the computer's idle time to analyzing signals looking for aliens [177].

mentioned, this is not the case. The digital divide and structural injustices (for ICT and media literacy) have retarded access in communities [93]. Crowdsourcing advocates will invoke pluralist and democratic concepts to rhetorically present narratives as identifiable to others[49].

Concurrently, collective witnessing becomes mediated, afforded by cable and satellite television, and the internet. Collective witnessing assumes a collectivized engagement. It "is a call to action—action as a result of learning to see differently." [95] It is moving beyond being a merely a spectator to acting upon what one is seeing. This period afforded this form of interaction with social issues at a mass scale. This occurred through social platforms, but also through the international broadcasting: from the fall of the Berlin Wall to the traumatic shots of 9/11. Simultaneously, the internet's message boards and new social networks facilitated great outpourings of emotion. Collective witnessing afforded the ability to consider a way to act collectively. This was collective intelligence as social action. During this phase, digital anonymity gained a more significant association with identifiable expression. The ability of many to give a voice to an issue, to participate in near real-time, only added weight to this rhetoric.

3.3.1 *Mainstream Collective Intelligence as Social Action*

[49] Instead of agreeing through the media experience, the distributor or facilitator of the experience invokes band wagon rhetoric. When Kickstarter campaigns surpass their funding goals, media properties will rhetorically invoke that mass engagement to encourage others to contribute. They are saying, "Everyone loves this campaign. So, you should identify with it too."

In television and popular film, collective intelligence manifested differently. The impact of 9/11 on the media ecosystem was and continues to be palpable. Noam Chomsky's and Edward S. Herman's five filters for editorial bias in *Manufacturing Consent* were written in response to the period pre-9/11, but they resonated in the aftermath [96]. First, the size of media organizations grew dramatically through mergers and acquisitions during this period with Fox News, CNN, and MSNBC dominating the news cycles by 2001 [97]. Second, the 24-hour news cycle entrenched news interests with advertising dollars. Third, public relations and lobbying businesses exploded as they vied for attention, from both viewers and politicians [98]. Fourth, this sometimes resulted in these individuals, PR gurus, lobbyists, and ex-government employees filling these same roles, as news pundits. This increased in the wake 9/11, and dramatically so leading up to the US invasion of Iraq in 2003 [98]. Fifth, think tanks, such as the American Enterprise Institute, who claim political neutrality act as enforcers of the dominant values of the day. In this manner, the mass media's gaze embeds and maintains values preferred by the state. For example, Chomsky has opined that the War on Terror has replaced Communism as the bogeyman used to scare viewers toward elite perspectives.

In many ways, Herman and Chomsky’s model seems to run counter to what has been described as collective intelligence utilized as social action. However, this is not the case. The propaganda model may filter out opposing ideologies and narratives, but it rhetorically presents viewers with a narrative that appears pluralist. The panoply of government officials, opinion columnists for the dominant media outlets, ex-intelligence and military officials, ex-government officials of each ideological blueprint, Silicon Valley CEOs, and

popular academics debate within the confines of the dominant values. They are a Greek chorus, not an arena of opposing viewpoints. They invoke polyvocality rhetorically to claim an identifiable representation of reality. Further, this claim is enhanced by the sympathetic hypermediated content, social media messages, ticker, and mobile video. The presented narratives are multivariate but of similar values. By way of metaphor, a gumball machine contains many different gumball flavors and colors, yet all are gumballs. It is the same with the soft mechanisms of the propaganda model. It affords the imitation of diverse viewpoints while presenting, instead, a cohesive ideological view that enforces dominant embedded values. It is a rhetorical invocation, one that gives an impression that the collective intelligence represents a plurality of voices, to create knowledge and direct action.

3.3.1.1 Whole Earth ‘Lectronic Link and other Virtual Communities

The Whole Earth ‘Lectronic Link (WELL) is a computer conferencing system that, “enable[s] people from all around the world to carry on public conversations” and private ones through email [99]. Howard Rheingold considered it a medium that, “enables us to assemble.” [99]. Critically, he stated that he felt like it was an "authentic community." Not just because it had norms and contracts but because Rheingold would run into these people in real life. Participation in the virtual community was constrained to the geographic bounds of the San Francisco Bay. This was Rheingold’s community. Knowing that he might run into an individual in his neighborhood gave other users’ digital performances [100] a degree of identifiability. The online performances matched up with real life persons in Rheingold’s life, they were identifiable. While future networks did not have such spatial

bounds, the myth that behind each avatar was an individual acting as themselves, that is authentically, continued.

WELL was and continues to be used by diverse communities of users seeking to pool resources and knowledge to motivate social action. In 1993, the activist and educational reformers on WELL were, “using the medium as a political tool” [99]. These kinds of statements can be found in every social networks and community. This period saw an explosion of them: Classmates.com (1995), Xanga (1998), WriteaPrisoner.com (2000), NuPedia AKA Wikipedia (2000), Friendster (2002), Google Answers (2002), Myspace (2003), Yahoo! Answers (2005), YouTube (2005), Facebook (2005), and Twitter (2006). Each community has its own affordances, interaction patterns, and embedded values. What united them is that they were used by individuals to deliberate, organize, information, and act together collectively. Mere participation in these groups, at this particular cultural juncture, was considered authentic. It was buttressed by the belief that digital anonymity afforded users the ability to express their authentic selves more freely. This was a common belief, even though there was anxiety about the person's identity behind the avatar. Such apprehension was likely a symptom of users' online performances.

Social media scholars such as Bernie Hogan have looked to Erving Goffman’s theories of performance and masks [101] to explore behavior on collective platforms. Hogan distinguishes between performing with others and exhibitions. The former being an MMORPG or MUD, and the latter being a performance of the self that can be taken out of context and played or engaged with elsewhere. An exhibition, for example, would be a

selfie. Performing with others happens in the present and requires continual impression management by the user [100].

In both instances, exhibitions and performance with others, digital rhetoricians have recognized that the user avatar—a virtual body, username, handle, or projection—has a rhetorical impact. This aligns with Sherry Turkle's work on identity and virtual communities:

> In cyberspace […] one's body can be represented by one's own textual description: The obese can be slender; the beautiful plain […] The relative anonymity of life on the screen—one has the choice of being known only by one's chosen "handle" or online name—gives people the chance to express often unexplored aspects of themselves. Additionally, multiple aspects of self can be explored simultaneously. [102]

Turkle invokes the myth of anonymity affording more authentic expression in online communities. Her observation also outlines the way in which the different roles, exhibitions, and masks can be used to explore aspects of one's personality, to explore and highlight one's particular predilection or identity. Not only does this change the way a user acts in a participatory setting, but it also influences how others respond to a user's actions. In World of Warcraft, an MMORPG, digital rhetoricians noticed that the gender players chose for their avatar had a palpable impact on their play experience. This confirmed the bias in a space where avatar identity may not be connected to a physically accurate representation of an individual. The virtual body or username, the avatar, can be used

rhetorically to invoke a particular characteristic that can be an embedded value. In turn, the experience or performance becomes identifiable. This rhetorical use of the avatar further problematizes the rhetoric of collective intelligence.

In the literature on virtual communities and collective intelligence, there is a concern with their capacity for effective social change. Digital rhetoricians refer to the concept of mind sharing as the creation of expert wisdom through collective intelligence. This concept is based on empirical positivism wherein the number of people participating is equated with production of authoritative knowledge [103]. Here, again, active participation is considered equal and valid, without consideration of manipulation or bad actors. Underscoring this naïve approach, Henry Jenkins states, "We are just learning how to exercise that power—individually and collectively—and fighting to define the terms under which we will be allowed to participate" [104]. Collective intelligence with social action is fraught with quandaries, but the myths surrounding it have been effective in motivating social action.

3.3.2 *Radical Collective Intelligence as Social Action*

The networking of the world through the Internet's virtual communities afforded some groups a larger audience to share their message. Political groups created, content worlds through interactive storytelling to "achieve public attention and influence." [105]. Advocacy groups were able to use collective intelligence to the same effect. In the same instance as the mainstream, these groups relied upon polyvocality and anonymity to make visual rhetoric identifiable. It may take the form of a database of footage, a message board,

a virtual community, a chatroom, a group on a major social network, or a standalone interactive platform. They are interactive forms of Esfir Shub's synthetic documentaries of the 1930s. Here, collective intelligence is invoked as collective witnessing and testimonial as social action. As users traverse the content, via links or interface, the procedural rhetoric underneath the experience makes it story identifiable [106, 107, 106].

During this period, the first interactive documentaries were produced. As documentary moved from the television to the computer, documentarians created kaleidoscopic narratives, sometimes presented as a database or as a tree of content for users to choose from [15]. The ability to interact with the documentary by linking content together empowered users and associated them with the message [20]. Web-documentaries used visual design, information architecture, and interaction to present the documentary's voice [15]. Additionally, they were updated in real time to expand on the documentarian's message perpetually. This has been referred to as a Living Documentary [108].

3.3.2.1 The Advent of the Interactive Documentary

The roots of the interactive documentary can be traced to some early interactive platforms [49]. Judith Aston and Sandra Gaudenzi defined four modes for these kinds of experiences—conversational, hypertext, participative, and experiential [49]. The first, the Conversational Mode, "positions the user in conversation with the computer" [49]. The *Aspen Movie Map* (1979) was an example of this. Developed at MIT, it offered users the ability to tour around Aspen in an experience akin to Google Maps' Streetview.

Another mode, the Hypertext, involves the point-and-click navigation discussed above. A web doc example, *the Gift of a Lifetime (2004)* is a journey through photos and testimonials of those waiting for an organ transplant [109]. Users click through a web interface to read and listen to the stories from donors and those waiting. It provided users, in addition to the documentary, curricula for some different grades about organ donation. Examples of CD and DVD experiences include *Immemory* (1997) and *Bleeding Through the Layers of Los Angeles* (2004) respectively.

Immemory, created by Chris Marker, presents users a series of interconnected zones of memories that they must click through. Each branching memory constructed becomes knowledge for the user. The goal is to present the memory not as a history book but as a geography to traverse. Each zone is a hypermediated remix of photography, computer-generated images, film, music, text, and poetry. Marker anticipated the role of the viewer as co-creator of knowledge twenty years before *The End of Coal (2008).*

Concurrently, some interactive documentaries took more game-like simulation approach as a mixture between the Hypertext and Conversational modes. What resulted were experiences like *America's Army* (2002) and *JFK: Reloaded* (2004). *JFK: Reloaded* drew some critiques for affording the user to recreate the assassination of JFK as claimed from different conspiracy theories. In *The Secret Plot to Kill Hitler*, users interacted with clips of live actors with the faces of Hitler, Churchill, Roosevelt, and Stalin superimposed upon their own and archival footage.

Bleeding Through the Layers of Los Angeles follows the protagonist Molly, "who bears witness to the socio-political phenomena that have shaped the city's urban landscape since the start of the 20th century." The DVD utilizes a remix of remediated archival content from the city. Some of the first 360-panoramas in the interactive documentary form, stitched in Quicktime, were included [110]. Additionally, it shipped with a novella that blended the ethnographic work with narrative. "The DVD-ROM reveals the documentary infrastructure behind the novella, which in turn present the traces left by a singular existence in historical time." [110] Reframed, the ethnographic information presented on the DVD made their narrative identifiable and substantiated the existence of a fictional existence in a historical time.

Another disc-based example from this period was Glorianna Davenport's, *New Orleans in Transition: 1983-1986* (1987). Davenport, one of the founding members of the MIT Media Lab and founder of the Interactive Cinema group. Her interactive documentary was on laser-discs that could be viewed linearly or could be navigated via a workstation [111]. Davenport invokes the necessity for audience participation in her work.

> I am an observer. My tools are my eyes, my mind, the camera, the tape recorder, and display technologies. The dream is that cinematic documentation can offer insights into how people think and interact. The critical ingredient to the success of this kind of film is access, particularly access to human interactions. The crucial ingredient following completion of a movie is an audience.

As part of a course, students used Project Athena, to take content from the stories and embed them in their written work. Further, the workstation had two laser discs that enabled for seamless edits between scenes. This allowed users to engage and participate in the documentary experience directly.

New Orleans was not a branching narrative. It was a "free form, associative information resource, and therefore the likelihood of two paths being the same is minimal." [111] It is exemplary of database navigation and meaning-making. Davenport hoped that users would deliberate over the merit and ethics of developers during the filmed urban transition. Davenport refers to this deliberation as additive, in that new examples of evidence become unearthed as the user progresses from sequence to sequence. This parallels the strategy of polyvocal epiploce, the rhetorical stringing together of statements each more striking than the last. It is a strategy that has become foundational to interactive non-fiction and its protean capacity for identification.

During this period, Glorianna Davenport started the MIT Open Documentary Lab grew it into the most extensive collection of these works. The canon is available their docubase.mit.edu website. There, interactive documentaries that are hypertext experiences, kaleidoscopic transmedia narratives, simulations attempting procedural rhetoric, and other Interactive Non-fiction experiences are present. The archive is updated regularly in 2018 and includes experiences that utilize reality media, machine learning, A.I. and other emerging forms. The work is curated by current graduate students, fellows, and staff at the lab.

Lastly, the remediation of archival documents becomes part of the most interactive documentaries of the period. Much as in other forms, remediation of legacy media rhetorically invokes the claims of authenticity that the older media provided. The photograph still maintains its myth of scientific inscription, as do audio recordings on vinyl. Scratches and imperfections of legacy media, presented through emerging media, enhance this rhetorical impression. Early interactive documentarians utilized this tactic as part of an established practice of the form. The use of montage and film-representation of official documents began in the 1930s by groups such as the WFPL.

The other two modes, participatory and experiential manifest in the next phase, generally around 2008. This was due to technical considerations and maturity of web 2.0 affordances. That is not to say that were not participatory or experiential documentary experiences before 2005. They just did not mature as a form until then.

3.3.2.2 Collective Practices in Performance

Beginning in the 1980s, artists heeded a "call to break down barriers between art and media […] high and low art" [112]. John Jesuran, a filmmaker and dramaturg of the period produced work that questioned how objectivity was constructed through the media form. In *Change in a Void Moon* (1982), he utilized filmic techniques like pans and jump cuts in a live and episodic serial that was shot of and project for his audience. In another, *White Water* (1986), actors on recordings of talking heads engage in a 90-minute battle over illusion and reality. The dialog was structured over the rhythmic tick-tock of the metronome to give the dialog a mechanical and constructed feel. Such work highlights the

high degree of technology that found itself onto the stage. Yet, it also points to an anxiety of how media was shaping perceptions of reality.

The collective and advocacy work of performance artist Reza Abdoh is exemplary of collective intelligence as social action. Herein the intelligence comes from testimony given by the artist, performers, and audience. In his *Quotations from a Ruined City* (1994) he arranged ten fragmented platforms that the audience could lean in and out of as an active witness. On these platforms were live tableaus and projected images of the ruined cities of New York, Los Angeles, and Sarajevo over the images of "bodies ruined by AIDS." [112] In parallel with this work, ACT UP (AIDS Coalition to Unleash Power) disrupted public spaces and institutions through "die-ins" and other performances. Such work is reminiscent of Boal's Invisible Theater in the 70s and the work of the LWT in the 30s.

In the 1990s, many new media performance groups focused their scenography as a source for narrative. In Robert LePage's *Seven Streams of the River Ota* (1996), a hypermediated mixture of constructed spaces, computerized projections, and film sequences of Japanese acting styles came together in a "virtual reality matrix" that performers and the audience could pass through [112]. Performance artists worked to use media in this manner, to create environments that contained narratives in themselves. Increasingly, as the internet became a stage for performance; the stage became a critical space for visualizing the collective aspects of the internet [112].

The Laramie Project is probably the best-known documentary theatre project of the early 2000s. Composed by Moisés Kaufman, the production interrogates the tragedy of the

murder of Matthew Shepard, a gay University of Wyoming student, in 1998. The play was constructed through hundreds of taped interviews and discussions. What resulted was an archive of over 400 hundred hours of material. This was weaved together into a narrative that exposed the prejudices of a town and a reticence to enforce laws that would punish a hate crime. This interrogation of a small town and its people as they grappled with the murder surfaced some ethical questions related to participatory storytelling.

Unlike the LWT and Brecht, Kaufman's Tectonic Theater did not blatantly abstract characters from real life individuals. Actors represented people as they perceived them from the interviews. However, once the interview was transcribed, the actor no longer concerned themselves with attempting to represent the subject of the interview. Instead, they constructed their characters from the person they perceived in the interview transcript composed of raw ethnographic research. This problematizes the claim that the play was representing the objectively real. They were portraying actualities of real individual people, a cognitive synthesis of the subject's story, the researcher's notes, the dramaturg's revisions, and the actor's craft. The portrayed character is quite removed from the original subject. The claim of representing reality is rhetorical, not factual. It is an appeal to positivism that elevates the narrative and its impact. The play was remediated as an HBO dramatized documentary. It continues to be performed, and the documentary is occasionally still shown on the HBO network twenty years later.

3.3.3 *Rhetorical Affordances in Interactive Non-fiction from 1980 – 2005*

Representations of reality during this period were constructed through the invocation of polyvocality, affordances of collective intelligence, web 2.0, and the explosion of the information-communication-technology (ICT) infrastructure. The dominant discourse utilized the participation of many pundits, most ascribing to dominant values, to rhetorically invoke polyvocality. Additionally, the remediation of sympathetic messages and media from online were rhetorically used to validate the pundits' representations of reality.

Radical groups on both the right and left were able to use the platforms, along with the invocation of anonymous collectives, to motivate social action. Key to their capacity to do so is the myth, inherent in virtual communities, that a living person is acting authentically on the other side of the avatar. While this myth has been tirelessly disproven, the 2016 election has shown that a lack of literacy in this regard can have political consequences. This is all shown in Table 5.

During this period interacting through a medium, whether it be collective or by navigating a database, became an authorial voice. Though constrained by the designer and developer's interface and content, users could interact in a free-form manner to create identifiable knowledge that could motivate social action. In the dissertation's workshop, this intent is present in the interface design of the mobile app. In contrast to the anonymous collectives of this period, the content in the workshop is collected by participants who know one another. However, as part of the grassroots tradition, workshop participants crowdsource material for their representations of reality. Further, they use this material to

collectively construct a representation of reality. This representation, since it comes from the participants, is knowledge valid to them, at the very least.

Table 5 The Rhetorical Affordances Framework for Interactive Non-fiction from 1980 – 2005

Affordances for Identification		The Gaze		Documentary Voice	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
Remediated physical documents ICT infrastructure Optical disc formats Physical locations	Web 2.0 affordances Hypermedia GUI Database Remix Hypertext E-mail Recorded/ digital video Projectors, speakers, and other mechanisms Mobile media	Interactive digital experiences and platforms Heavily mediated performances Transmedia combinations	State Imperial Male Oppositional Shared Reflexive Digital	Passive Passive-adaptive Active Active-adaptive	Database navigation Pont-and-click Choose your own adventure Media uploading and creation Mediated messaging Playful interactions (gaming)

3.4 Cultural Production as the Performance of Social Action (2005 – Current)

During this last proposed phase, there is a shift from collective intelligence as social action, to cultural production as the performance of social action. It is a shift signified by

the myths regarding the efficacy of new participation avenues for social action. The previous phase was defined by the connections and deliberations of collective groups made in almost real time. It was defined by the belief that the peers in said groups were real people performing a more identifiable version of themselves through anonymity. That, in sum, this collective engagement led to polyvocality that rhetorically constructed stories, decisions, and actions as identifiable. In this current phase, it is the media and interactions produced by the groups (and individuals) that become the performance of social action. Whether or not said actions result in actual change is less immediate than the production of a media experience as a rhetorical, social act.

This phase is not clarified by Theodore Adorno and Max Horkheimer's insights on the culture industry. For Adorno and Horkheimer, the spectator is passive or pacified. While some individuals indeed are passive, interactive digital media enables others to activate, to construct arguments, and convince others through the cultural production of a particular social action. Given that deliberation over these social actions occurs online and through the media, the process is hardly passive. However, the efficacy of these social actions outside of media becomes second to the feedback mechanisms of digital media. These mechanisms are likes, shares, analytics, play-throughs, downloads, and more. This is not to say that the social action is not a critically important goal. Only, that whether or not it succeeds is now, in part, related to response to its cultural production.

For instance, *Kony 2012,* a documentary to advocate for the "Stop Kony" movement in Uganda, is lauded for its 101 million views and 1.4 million likes on YouTube, and 18.6 million views on Vimeo in 2017. According to the Pew Research Center, in 2012

nearly half of adults 18-29 years old had heard of the film [113]. The film is credited with the United States Senate drafting an official resolution in response. While these are tangible actions that resulted from the film, the activist effort was referred to as hollow, with dollars donated and views garnered as being equated with social action. Further, that the actuality created in *Kony 2012* was uninformed, that it simplified a complex issue that treated, “consumerist-consciousness raising as interchangeable with education." [114] Atlantic, writer Teju Cole referred to the video as being part of the White-Savior Industrial Complex [115].

> The White Savior Industrial Complex is a valve for releasing the unbearable pressures that build in a system built on pillage. We can participate in the economic destruction of Haiti over long years, but when the earthquake strikes it feels good to send $10 each to the rescue fund.

It is a structure in which the context of a social action is obfuscated, and the cultural production of the action (a film, an interactive experience, a social post) is elevated as the social act itself.

Figure 22 Time's "Person of the Year" are reporters producing non-fiction. Their cultural production is elevated as a social action.

Take Time's Person of the Year in 2018, the "guardians of truth," reporters of every stripe who have a critiqued, analyzed, and reported on the politics of 2017 and 2018 [116]. The cover is shown in Figure 22. Unlike in the 1950s, when the CIA and the Eisenhower administration enlisted reporters to embed anti-communist values, the Trump administration has done the opposite. They have enlisted only their supporters, media communities, and groups built by nationalist populist conservative and media mogul Stephen K Bannon. Instead of reaching across the political aisle, the administration relied on Breitbart and other far-right communities to proclaim the values they put out as identifiable. In response, investigative reporters in the mainstream and on the fringe became the "guardians of truth," which is to say of reality, or more honestly mediated actuality.

This war, reminiscent of Eisenhower's weaponization of truth, has played out through cultural production. In 2018, the confirmation of authentic information and verifiable knowledge did not occur in town halls with representatives, not in cafes, nor in echo chambers[50]. It has occurred through a tug-of-war of information with the administration. The cultural production of reporting has become a social action in and of itself. Take Can Dündar, a Turkish journalist quoted by Time, "'This is the world of strong leaders who hate the free press and truth,' Dündar says. 'When you start defending the truth, you become the story itself.'" [116] Dündar's sentiment and acute observation is not reserved only for journalists of this period. Every day, people see themselves as the story, as the defenders of their narrative, performance, and media actuality. This is not due to politics and culture alone. Media affordances and procedurality have framed this moment.

3.4.1 *Networks of Procedural Rhetoric and Knowledge Creation*

The current phase is shaped by both procedural rhetoric and the rhetoric of presence. Ian Bogost's procedural rhetoric, with its roots in Janet Murray's making of belief, is "the practice of persuading through processes in general and computational processes in particular." [117] It is a rhetoric that sits within the design and code itself—it persuades by directing interactions and the rehearsal of behaviors through simulation. It is

[50] Politico reported in August of 2018 that, "Members have scheduled only about 180 in-person events this recess, a nearly 70 percent decrease from the same time last year, according to data tracked by Legistorm." Until 2018, the average had been 450 events by August since 2016.

a way to embed values in an interactive experience. Although Bogost writes for games, the concept of procedural rhetoric can be expanded to comment on the contemporary media ecosystem of 2018.

Procedural rhetoric has been critiqued by Miguel Sicart because it, “disregards the importance of play and players as activities that have creative, performative properties.” [9] Games’ code and design are meant to produce particular outcomes that accord with their embedded values. However, players consistently break through these walls or find ways around them as a form of creative play. This play becomes the user’s co-creation of the experience. Procedural rhetoric that ignores the player ignores, “the single most important ethical and political, and creative element of the game: the values and opinions and cultural presence of the player who engages in play.” Recognizing that play and performance are intertwined, procedural rhetoric can be used to explore the values embedded in social networks’ processes and how their design facilitates a particular behavior—namely cultural production. A user’s high score on a social network is earned through feedback mechanisms, likes, shares, re-posts, re-blogs, web analytics, social metrics, hearts, favorites, re-tweets, mentions, downloads, and plays. These feedback mechanisms become rhetorical markers of identifiable action. In this framing, procedural rhetoric is integral to this politics of visibility on social networks.

This has an outsized impact on shaping users' representations of reality. The procedurality of social networks enables reproducibility. As a meaning-making apparatus, the platforms maintain themselves through the performance of these procedures. These include, on social networks, the way they make money from sponsored content, advertising

engagement, and the pay-per-impression advertising culture. Commonly used procedures that result in performances that are identifiable with an audience calcify as core functions. They become the main functions of a platform and speak to communities who gain value from producing meaning through them. For example, YouTube's procedural rhetoric shows users the next most extreme version of what they are watching to maintain their interest [118]. This has been proven to radicalize groups of users [119]. Procedures that become calcified may result in echo chambers in which individuals reinforce a shared ideology through their performances. The act of cultural production, in this instance the creation of a YouTube playlist, produces a radicalizing social action[51]. These kinds of interactions, spurred on by procedural rhetoric, occur through every social network.

3.4.1.1 Procedural Rhetoric and the Performative Political Selfie

The selfie, an image meant to be shared via social media, was described by Lev Manovich. He discusses the process of sharing selfies as a form of identification. “By sharing their selfies, Instagram users construct their identities and simultaneously express their belonging to a certain community.” [120] Such construction is an outward exhibition that signifies to others, especially during elections, a political affinity or engagement. Documentary scholar Catherine Summerhayes sketches the influence of these newsfeeds and streams of documentary images [121]

[51] In January of 2019, YouTube said it was taking steps to remove conspiracy videos and cut down on the spread of misinformation. [178]

The potential cultural meanings available in one web surfing session can be the actual result of these images being placed side by side with others via their sequential or spatial placement over the vectors of time and the mapping of geographical space as it becomes apparent in web space.

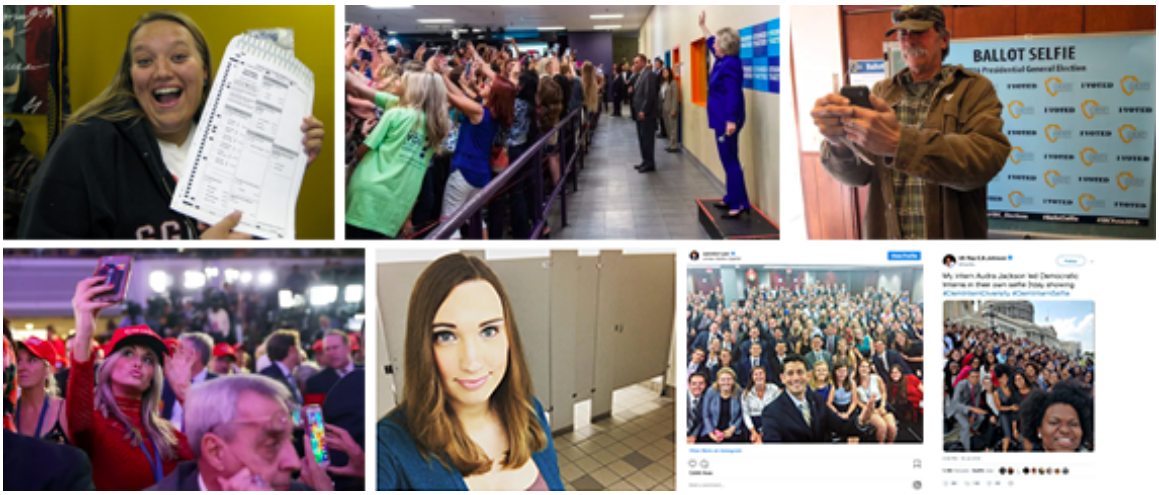

Figure 23 From top-left to bottom-right: A woman shows a selfie of her completed ballot, a cultural production that showcases her performance of social action as political participation; throngs of Clinton supporters take a selfie to perform the social action of showcasing party loyalty; a gentleman takes a ballot selfie, such selfies were banned in a number of states due to their potential influence on voter turnout and results [1]; a woman snaps a selfie at a Trump rally, performing the social action of belonging to that particular party; a trans woman posts a selfie in a NC after the bathroom law passes, putting herself in danger to produce a media artifact that serves as the performance of social action; and dueling selfies of house interns, which produces performative images that define two political tribes and invoke polyvocality to make identifiable claims.

A selfie image is presented as documentary evidence of a particular cultural and social performance. When presented in a stream of similar images, the meaning and value embedded through their visual rhetoric become apparent through the rhetoric of presence. Their cultural production, the knowledge it makes, becomes a social action in the yes of

the user. Looking at Figure 23, the cultural production of the selfie is identifiable as the social action of political engagement.

In each of the images, the personal, cultural production of a mediated artifact is considered the performance of social action. The artifacts themselves, as in the case of Sarah McBride's shot of herself in the North Carolina bathroom, become performative artifacts in and of themselves. As their social momentum increases, they begin to spur critical reflection and engagement with the issue. The same can be said of the 2016 incoming house intern shots. House Speaker Paul Ryan posted the first selfie. The selfie's ontology was not critiqued, but its content was—specifically, the lack of any people of color. In response, the democratic house posted a selfie of their diverse group of incoming interns. Both images were used as foils to discuss the lack of authentic representation of people of color in the legislative body.

The cultural production of the images is a reflexive *social gest* [121]. The term, used by Brecht, is defined as, “the mimetic and gestural expression of the social relationships prevailing between people of a given period” [71]. Their exhibition, particularly during an election season, defines how each person is acting with the politics of the day. The social action is a collective reflection. It is facilitated by the procedural rhetoric of the network and how users choose to represent themselves. In sum, this collection produces knowledge about how people are socially acting together. It achieves consubstantiality. The production of the picture is a rhetorical performance of identification, one that feeds into a politics of visibility. This is the realm of advertising and public relations.

In a recent article about Instagram celebrities posting fake sponsored content, Brian Phanthao, a 19-year-old lifestyle influencer in San Diego said, “The more sponsors you have, the more credibility you have.” [122] The cultural production of creating advertisements (fake) in a neoliberal society gives the user the impression of being an authority. The flow of fake ads, facilitated by the platforms’ procedural rhetoric, affords a rhetorical identification with the belief that, “‘It makes you seem more established, like you have brands that you’re working with. That means you’re producing good content and you’re worthy of approaching and offering these opportunities to.’” [122] While not the social action of social-engaged advocates, the cultural production is identified with the social action of product advocacy. Through the fake campaigns’ visibility, images give the impression of (neoliberal) legitimate social action—selling to the masses. Whether the cultural production of the fake ad benefits the business is ancillary to the user’s quest to be seen as an effective producer of culture [122].

This lack of accountable execution is related to failings discussed in Rita Raley’s *Tactical Media*. She defines the media as, “the intervention and disruption of a dominant semiotic regime, the temporary creation of a situation in which signs, messages, and narratives are set into play and critical thinking becomes possible.” [123] Tactical media are a momentary interruption, an intellectual one, to encourage social action. They are miniature performances of social action that, to paraphrase Slavoj Žižek, are the fantasy of revolution without revolution. While the performances on social media are not all tactical media, they are plagued by this same anxiety—whether they are identifiable and can achieve their proposed action.

The recommended phase allows everyday people to perform as artist-activists: to become INF storytellers working as propagandists on their side of righteousness in message boards, blog posts, and news feeds across the web. Critically, this means that the work is never complete. The process of cultural production itself becomes the performance of social action. Which is to say, that the mediated process is aligned with the expected yet unprovable results.

As Raley states, “There are no proffered fantasies of radical systemic change: it exists as a possibility within the realm of the imagination—another technology of simulation—but it requires collective action, a ‘ton of protesters.’ [123] Raley elevates cultural production as the performance of social action even as she laments it. Believing that a "ton of protestors" would be needed for collective action, presupposes that those digital protestors are representative of actual individuals, further that they belong to the local or national community. While such a myth may have been rhetorically impactful through 2009, it rings hollow in 2019.

Online, algorithms that were meant to help users find niche communities resulted in echo chambers. Admittedly, social networks facilitated the viral spread of documentary narratives, as in the cases of the Arab Spring and the Ukrainian Revolution [124]. However, the networks’ structures for user interaction and information distribution made communities vulnerable to bad actors looking to spread false information, making all stories suspect. In the first three months of 2018, Facebook deleted 583 million fake accounts [125]. That was roughly a quarter of the network’s userbase. Three months later, in August of 2018, Facebook deleted over 600 accounts related to Russian and Iranian

influence campaigns [126]. The accounts had, “about 15,000 Facebook followers and 1,100 Instagram followers.” [126]. The fact that so many fake accounts were successful in influencing the 2016 election in the United States underscores two things. First, that the myth of collective intelligence is rhetorically effective; and second, that its rhetorical invocation at a cultural junction wherein the production of media is considered the performance of social action results in constructed stories that appear identifiable. In the politics of visibility, the line between identifiable actualities and reality becomes intentionally blurred. This results in a culture in which images cannot be trusted, a visual culture of distrust [127].

In summary, the phase is marked by behavior as innocuous as sharing a picture of yourself at a protest or as intentional as producing a film, designing an interactive experience, or any INF account of an event. The behavior involves using digital media to produce a cultural artifact about social change with the belief that the process of producing the artifact performs the social action. While the process of constructing the artifact makes it identifiable, the final piece cannot claim effectiveness without relying on its embedded feedback mechanisms for cultural production (likes, hearts, shares, etc.). In the first phase; media was for critical reflection; in the second phase, it was a platform for rehearsing future social action; in the third phase, it was a venue for organizing and deliberating said social action as a collective; and in the fourth phase, the process of cultural production itself is identified as social action.

3.4.2 *Mainstream Cultural Production as the Performance of Social Action*

Beyond the usage of social networks, as discussed above, there were some other instances in which INF storytellers utilized cultural production as the performance of social action in the mainstream. Without spending more time on it, the 2016 election showcased how political parties and foreign powers could use cultural production through social networks to influence voters [128]. That this primarily happened through Russia's Internet Research Agency [128] is tragically ironic considering the United States' Workers Film and Photo League helped to bankroll their country's first international propaganda film studio. Outside of mainstream politics, this use of cultural production for the performance of social action occurred in Reality Television as well.

3.4.2.1 Reality Television Producing the Performance of Social Action

Reality Television began in the early 1980s, became popular in the early 2000s, and established itself as a fixture of the media landscape shortly before 2005 with the mass appeal of *Big Brother* and *Survivor*. These shows always involved some degree of competition and a monetary prize. Sometimes the competition was merely spending time with one another, as in the *Road Rules* franchise. There is also a small number of reality shows that are created to motivate social or engagement. Their production is the performance of social action.

In 2010, at the height of the Great Recession, CBS began producing the series *Undercover Boss*. Each episode followed the CEO or a management-level employee experiencing the life of their entry-level workers. Each episode involves heart-wrenching dialogues between the manager and their employee. Often, they would learn of some

significant expense or tragedy that has cast a shadow over the life of the entry-level laborer. Most frequently, the employee is hard working, consummate, and grateful for being employed. Keep in mind this was during the recession, a two-year period when 30 million Americans lost their jobs [129]. At the end of each episode, the manager would reveal themselves while simultaneously showering monetary gifts, promotions, and even homes onto the more than deserving employee. This is quite reminiscent of the magical narratives of climbing the capitalist ladder performed in the Weimar Republic. In this sentiment, a review from the Washington Post called the show,

> a hollow catharsis for a nation already strung out on the futility of resenting those who occupy CEO suites. […] an unbelievably juicy PR opportunity for the companies that agreed to do the project and a manipulative bummer for the unwitting employees who have the misfortune of appearing on it. [130]

By presenting the narrative as—a CEO who stoops down to live the life of an entry-level employee gains altruism and then showers his hardworking employee with gifts—is a new spin on an old American story. The cultural production of *Undercover Bosses* performs social action, that of social altruism and corporate accountability, consubstantiality. Whether or not the social change happens is ambiguous. At the end of one episode, the COO of Waste Management forms committees to explore what he experienced [131]. What came of those committees is unknown.

A similar example is, *Give* produced by NBC. In the reality series, a celebrity is made up to hide their appearance. Then, they are sent off to interface with a charity. They

work with the employees, hear the stories of those being supported, and generally engage with the work itself. After, they deliberate with the show producers and foundation managers from United4:Good to decide where the money should go and how it should be spent. The diligent work of the nonprofit and charity workers is minimized in relation to the financial investment and reward. The cultural production of the show, its celebrity-buttressed financial engagement, has its basis in social action as a business. One of the co-creators, Blair Underwood says,

> Our thing is, every foundation is almost a business unto itself. […] They're all doing good work, they're all helping people. Anyway, it's one of those projects that is a win-win-win situation for everybody involved. At the very least, they all get some financial benefit, and the exposure is a win for the foundation and the charities. [132]

Moreover, the production company. While all of this is undoubtedly true, it relies upon the cultural production of the show to perform this social action of charitable giving. This is not to downplay the excellent work the show has done, but only to frame their work as occurring at a particular cultural media juncture. It is a juncture in which the cultural production of social action is rhetorical. There is no critical reflection in later episodes of how the monetary donations benefit the charity or non-profit. At the time of writing, there have been no follow-ups. The performance occurs and then it is over. It is up to the intrepid viewer to research the actual impact of the giving.

3.4.3 *Second-generation Interactive Documentary Experiences*

While reality television was constructing experiences for the performance of social action for viewers, the second generation of interactive documentaries took a cue from social networks. They provided a participatory and collective storytelling approach. Leveraging networks to produce material and connect like-minded audiences became commonplace. This enabled INF practitioners on these platforms to quickly find a community and facilitate a political action[52].

This generation of the interactive documentary evolved into maturity in 2011. Examples from this period include *The End of Coal* (2008) and *Out My Window* (2010). There was an explosion of interactive documentaries such as *Prison Valley* (2009) and *The Global Remake* (2007). These experiences relied on the affordances of web 2.0 and allowed participants to discuss, organize, and comment upon remediated archival footage, images, and documents [49]. These experiences allowed the user to perform as documentarian, storyteller, or protagonist. They could co-create meaning on the platform through their engagement with the material and with one another. These were some of the first interactive documentaries to use the documentary voice as participation. That is, through participation through the INF experience, the stories and representations continue to grow and the voice, regarding the material, changes accordingly.

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[52] Zizi Papacharissi's explored how procedurality on Twitter helped to elevate some grassroots narratives and storytelling above others during the Arab Spring. The example highlights a network's capacity for controlling the narrative [124].

It is at this time that interactive documentaries are elevated in industry. The i-docs group, led by Professors Judith Aston and Sandra Gaudenzi, sketched the borders of the form as, "any project that starts with an intention to document the ‘real' and that does so by using digital interactive technology." These two colleagues along with Professor Jon Dovey started the i-doc festival to showcase these works. The festival has been active since 2011. In 2018, the i-Docs festival’s theme was "immersion." The competition focused on the use of reality media’s affordances for INF storytelling.

3.4.3.1 Interactive Documentaries using Reality Media

The works of Mark Skwarek, and Nonny de la Peña are a form of Interactive Non-fiction using reality media. Their experiences are designed and created in a manner akin to the pre-war period of political theater and documentary. Their work, from a critical perspective, represent the convergence of performance and documentary articulations within reality media

De la Peña refers to her work as Immersive Journalism [9]. She recreates events that have taken place, in reality, using VR, photogrammetry, and volumetric video. At the core of her work, de la Peña seeks to achieve a Response-as-if-Real effect on the part of users with the content of her documentaries [9]. She believes that one has to move within a VR space for empathy to occur [7]. Unlike Chris Milk, de la Peña’s experiences enable the user to walk around a virtual environment (VE) and view the action as an active witness. She proposes that users interacting in this environment are engaging in a form of pedagogical, social action through witnessing.

Out of Exile: Daniel's Story is an INF that is exemplary of de la Peña's foundational work and research. De la Peña seeks to achieve embodied interaction to encourage the immersion of the spectator in an INF scene. In *Daniel's Story*, users are in the living room of a family in north Georgia. They have the freedom to move around and witness a dramatic coming out story. The piece is composed of recorded documentary audio and the avatars of actors are recreated through volumetric video, their movements through motion capture. In this documentary drama, de la Peña enables cultural production through a playthrough of a tragic moment as a social action. Users' are meant to identify with the tragedy, their visceral and emotional response the first step to a potential, collective social action.

Figure 24 *The Goddess of Democracy* INF AR experience in Tiananmen square

On the other end of the reality media spectrum, consider the AR sculpture developed as part of an activist action in China by the collective 4Gentlemen [133]. The group collaborated with local artists to create an AR remediation of the Goddess of Democracy statue from the 1989 protests in Tiananmen Square. Representations of the statue are illegal in the country, but the AR version maintains the actuality as part of the

nation's cultural heritage. Show in Figure 24, 4Gentleman's AR monument is INF invisible theater. The group uses the affordances of AR and the rhetoric of presence to situate their representation of reality into the physical environment. It is an integration of an oppositional viewpoints in lived experience and constitutes a social action.

A similar example would be the *protestAR* mobile application. When New York City closed down Zuccotti Park and expelled the protestors during Occupy Wall Street, Mark Skwarek and his team deployed AR protestors to space [1]. The AR app was a documentary of the Occupy protestors. In a different iteration, the *arOCCUPY* app facilitated the #AROccupywallstreet tag as part of a global protest. Artists from all over the world positioned AR models, stories, and art on Wall Street as part of the experience. The participatory INF facilitated by the app framed the protestors' narrative without corporate intervention. During this experience, Skwarek and his team had to scurry about the park and streets of Wall Street to activate passersby. Similar to Vertov and the agit-trains, they used performance tactics set the context for the activation of their spectator.

3.4.4 *Rhetorical Affordances for Interactive Non-fiction 2005 - Current*

In this particular phase, cultural production as the performance of social action had an influential impact on politics, culture, and communities. Connecting experiences is a cultural production process that substantiates mediated social action that is rhetorical. Whether or not the audience or user is persuaded to act in the defined manner is ambiguous. The production process itself is rhetorically a social action. This has occurred through all manner of media during this period. For example, social networks have been grappling

with the influence of propaganda campaigns to shape social and national narratives. Similarly, INF storytellers have turned to platforms that facilitate particular performances of social action. These have ranged from active witnessing and instructive roleplays in VR to locative AR experiences. This is listed in the RAF in Table 6. The dissertation workshop invokes the same rhetoric. It encourages the cultural production of knowledge through a representation of reality as a rehearsal for a potential social action. Whether that action manifests or not is ambiguous. Its success relies on the rhetorical interactions of the participants.

Table 6 The Rhetorical Affordances Framework for Interactive Non-fiction from 2005 - Current

Affordances for Identification		The Gaze		Documentary Voice	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
Remediated physical documents ICT infrastructure Physical locations	Web 2.0 affordances Hypermedia and transparency GUI Database Remix Hypertext Messaging and email Recorded/ digital/ streaming video Photogrammetry and volumetric video Projectors, speakers, and other media distributors Mobile media Reality media Data sensors and visualizations Media Conglomerates Anonymous internet users	Interactive digital experiences and platforms Heavily mediated immersive performances Transmedia combinations	Shared Reflexive Digital Oppositional (bad actors) Oppositional (activists) Male Feminist	Passive Passive-adaptive Active Active-adaptive	Database navigation Pont-and-click Media uploading and creation Mediated messaging Ludic interactions Location-based Response-as-if-real

3.5 Key Points from this History

This history of case studies sets the foundation for the design of this dissertation's workshop. The history began just before the 1920s with the turn to media as a form for critical reflection and entertainment. Advances in film technology and political representation enabled non-fiction storytellers—documentarians and political dramaturgs—to tell compelling stories. The productions of the Workers Film and Photo League, Piscator, Workers' League of Theaters, Hallie Flanagan and the Federal Theater Project are a testament to how the affordances of emerging media can be used to reflect on social situations to spur political action. They utilized their classrooms and the warehouse floors as stages, projected images of remediated archival documents and footage, and even created the first project 360 panoramas. They sought to use these affordances to make arguments about reality identifiable. Their tactics—using handheld film cameras, embedded actors, coded language, and optical effects—worked to significant effect.

Paulo Freire recognized critical reflection as a form of social action in the 1950s. Augusto Boal turned this belief into a dramaturgy. His rehearsals for future action through Image and Forum Theater were a participatory political dramaturgy. The move to a reflexive cinéma vérité established the form as presenting a more objective story than other documentary forms. The participation between the documentarian and subject on camera offered a rhetorical transparency that was used to represent an experience and create knowledge about it. Further, the creation and implementation of NF performance methods

during this period utilized identification rooted in polyvocality, but also dramatic structures for NF and constructed spaces. Participation of others produces a more identifiable representation through a performance, image, and other media forms.

The explosion of communication media technologies in the latter half of the century ushered in the third phase. The capacity to connect to deliberate and solve problems defined this phase in history. It enabled collective intelligence as social action. Participation was afforded through web 2.0 technologies, optical discs such as CD-ROMs, and new interaction paradigms afforded through GUIs and WYSIWYG interfaces. This was the period that the first interactive documentaries, primarily in a hypertext and conversational mode, were used to co-create identifiable actualities with users. Although there was anxiety surrounding the issue, claims of objectivity—constructed through the rhetoric of circulation, crowdsourcing, avatars, and polyvocality—were associated with anonymity. At the same time, collective witnessing and testimonial giving about tragic events, such as 9/11, proved the cathartic effect of consubstantial act, of collectively grieving together.

The most recent phase began just after 2005 after the world's largest social networks got started. These networks allow individuals to share and perform as activists through cultural production. The platforms' procedural rhetoric and competitive play with the rhetoric of presence encourage the creation of stories through the sharing of advocacy messages, protest selfies, and other documentary evidence. The production of this work and the posting of it signifies a performance that makes a rhetorical claim of social action. The process of cultural production itself is an identifiable performance. This is enforced by the platform’s feedback features that count likes, shares, and all the other empirical

abstractions. Each new like or share rhetorically invokes the value of collective intelligence. At the same time, the second generation of interactive documentaries are enabling users to roleplay and live through historical experiences, co-create on-location, and even use machine learning.

Chris Milk, De la Peña, and Skwarek are operating at the forefront of using reality media in this phase. Their methods for working with subjects are operating much in the same manner as Brecht and early documentarians. The INF experiences I propose are closer to the work of Erwin Piscator, the LWT, WFPL, and Augusto Boal. They are didactic grassroots experiences that utilize media affordances rhetorically as part of a structured workshop. The workshops can uncover a problem in the community that needs to be addressed and facilitate the co-creation of an identifiable representation of that reality. Through the activities and tactics discussed in the next chapter, the co-creation of that representation can lead to social action.

CHAPTER 4. PRACTICAL PARTICIPATORY TACTICS AND WORKSHOP ACTIVITIES

This chapter derives practical participatory tactics and activities for INF workshops from the previously presented history of case studies. The rhetorical affordances of a medium are enacted through both mediation and participatory activities with an audience[53]. These tactics and activities are part of an INF's rhetoric. Participants enact the activities both through, with, and outside computational affordances to create representations of reality[54]. The practical participatory tactics and activities presented in this chapter can be used by a facilitator to structure an INF workshop. The activities encourage the co-creation of identifiable representations of reality with the goal of motivating social action.

The tactics put forward come from applied IN practitioners Paulo Freire, Augusto Boal, and Jacob L. Moreno. They are then summarized and synthesized to provide a concise set of tactics for directors, participants, and the media actuality. Whereas Boal's tactics are focused upon the development of games, Moreno and Freire provide more general guidelines for participant engagement. For the sake of clarity, details of Boal's theater games are provided in numerous tables throughout this chapter. These synthesized

[53] Even when these experiences do not occur in a workshop setting audiences engage with them. Whether that audience is in a theater or in the streets matters not. INF attempts to elicit their participation in the creation of knowledge and then in acting upon that knowledge.

[54] In the workshop setting, as in every day experience, participants can put down their device and begin representing reality through their bodies and other non-computational methods.

tactics are then paired with the affordances of reality media. Examples are provided for practitioners to model their own activities. Each of these workshop activities and tactics is developed to elucidate representations of reality, through dialog and a medium, to motivate social action.

4.1 Praxis: From Paulo Freire and Augusto Boal to Jacob L. Moreno

For each of the chosen dramaturgs, the desire to move from theory to practice was critical. In *Pedagogy of the Oppressed,* when Freire discusses the identification of the oppressor within the oppressed, he proclaims "This discovery cannot be purely intellectual but must involve action; nor can it be limited to mere activism, but must include serious reflection: only then will it be a praxis." Oppression, Freire reminds, is only discovered through critical reflection. His predecessor, Augusto Boal, extends this concept of reflection to include interaction and activation. For Boal, the reflection must not only take place on the stage and in the minds of the audience. If reflection were to lead to future action, it must involve the activation of a participant within the representation of reality. Moreno held similar beliefs. In a famous exchange with Sigmund Freud, he said,

> Well, Dr. Freud, I start where you leave off. You meet people in the artificial setting of your office. I meet them on the street and in their homes, in their natural surroundings. You analyze their dreams. I give them the courage to dream again. You analyze and tear them apart. I let them act out their conflicting roles and help them to put the parts back together again." [134]

This move from theory to practice is critical to INF. Without action, the INF cannot claim that its rhetoric, interface, or affordances were used effectively to achieve the goals of creating knowledge or motivating change. For action to take place, participants must be able to freely express themselves and be active in the process. The following tactics are meant to encourage this effect.

4.2 Tactics from Paulo Freire

Paulo Freire's tactics from *Pedagogy of the Oppressed* address how practitioners should conduct themselves. Much of his treatise presents the theoretical underpinnings for his liberation pedagogy. The following tactics will be discussed—critical reflection as a form of action, objectifying reality, and problem-posing. They each aid in the process of identification and eventual consubstantial action.

Each of these tactics is meant to achieve *conscientizacao*, raising one's perception from the naïve to a critical consciousness to achieve liberation [55]. This emancipation occurs by identifying various myths and deconstructing them. Further, it involves a concerted effort and action on behalf of the participants toward this end. When a community achieves *conscientização*, their representations of reality are identifiable with the teacher or storyteller's argument for liberation.

Freire's goal behind his pedagogy was to instill in the oppressed a mode of critical reflection that itself is a form of action. Key to this reflection is that the oppressed discover within themselves the identity and mythology of the oppressor. When this occurs, Freire

considers the critical reflection to be useful. Critical reflection as action frames Freire's entire pedagogy.

4.2.1 *Tactics for a Dialogic Practice*

Freire establishes some tenets regarding his mode of dialogic practice [55]. Freire's facilitators were educators who traveled to rural villages with low-literate populations around Brazil. They were outsiders of privilege who arrived to be of service to the oppressed. Freire implored facilitators to have a deep love for the communities in which they worked. In his words, "True solidarity is found only in the plenitude of this act of love, in its existentiality, in its praxis." [55][55].

The second practical consideration is that the practitioner is capable of encouraging hope. Hopelessness for Freire is akin to silence; it is the inability to voice or envision a situation better than the oppressed may find themselves. Hope is symptomatic of the existential incompleteness of the human condition[56]. Hope then guides and is nourished by dialogic practices. Participants in a state of hopelessness may feel like nothing will come from their dialogues, that all of the meaningful conversations will be for naught. However,

[55] Critics claimed that such a romantic invocation was idealistic, but Freire put forward that an individual who abandons class to work as an ally with the oppressed engages in the act of love.
[56] Kenneth Burke refers to the need to fill this emptiness as the need to identify with others. In his Dramatistic Pentad, it is recognized as "Purpose".

hope fuels the fight against the oppressors—as long as there is hope, the interminable climb to liberation may be sufferable. Instilling hope is a goal of the pedagogy of the oppressed[57].

Freire utilized the written word, and his non-diegetic narrators were educators. Unlike Dziga Vertov, who arrived on his agitprop train at the behest of the burgeoning Soviet government, Freire's teachers were asked only to come with an authentic need within themselves to fight with the oppressed. He framed this relationship between educators and their pupils as intersubjective: the educator as a teacher-student; the pupils as student-teachers. It is a dialogic pedagogy in a participatory epistemological mode that enables identification between the two. To maintain this relationship, he provided the following tactics:

- An educator must not set the itinerary for what is to be discussed and should instead only set the context for discussion.
- An educator should not become an investigator lest they shift from an organic dialog into an inorganic interrogatory mode. The oppressed, the participants, are not objects to be investigated.
- Allow participants to produce and act upon their own ideas instead of consuming and regurgitating what they have heard.

[57] This aligns with Antonio Gramsci and other Marxist thinkers at the time who believe that if workers could see the opportunities in their situation as structures that could be overcomer, that their liberation would be expediated. For example, Gramsci and the LWT hoped to use dramatic methods to help workers see themselves as the capable protagonists in a dynamic situation. Augusto Boal did similar work.

- An educator must seek to co-produce knowledge with the people and thus be jointly-educated to spur further dialog.
- An educator establishes a context based on the organized students' perception of their world, where their generative life themes are situated—their myths.
- An educator does not lecture but re-presents the world of the students as a problem to be solved.
- An educator should be forthcoming with intentions, plans, and devices which, by nature of the dialogic work, are not their own but co-constructed with the people they serve.

4.2.2 *Tactics for Objectifying Reality*

Critical reflection as action requires the framing of reality with the oppressed as an identifiable object, a designed artifact. Such an objectification can occur in two ways. The first takes the oppressor and moves them outside of the self and the individual. This move arranges the myths, culture, stories, and apparatuses of the oppressor so that they may be materialized through a medium, identified, and interrogated. Identification is achieved by drawing or sculpture. The second is to remove the individual from their world—to take the social reality of the oppressed and materialize it similarly [55]. The goal in objectifying reality is to allow the participant to locate themselves in an ever-shifting socio-historical space, not a static, unchanging state. It is done with others so that peers can identify one another with these experiences and perspectives. Such a collective realization inspires hope

for change. Freire refers to the materializing of these realities through a medium as coding [55]. Problem-posing leads to the decoding of these materialized realities.

4.2.3 *Tactics for Critical Reflection through Dialog*

The reality of someone's life is clarified once it has been identified and materialized through dialog. Their conversations lead to a discovery of themes in that person's life. These would be inclusive of oppressors and limiting conditions, what may be called structural injustices [135]. In a materialized state, the invisible power structures working upon the oppressed are made visible [55]. It may be possible for a participant to identify themselves not as the result or byproduct of these injustices, but instead living within them in a sort of flux[58]. Together, participants may identify their agency and seize upon the patterns and structures in their life that are oppressive. The intent is to empower participants to recognize that their reality is changeable. They are encouraged to see their situation not as a linear narrative of suffering, but a problem that they can solve. When successful, consubstantiated participants armed with a new critical understanding can go about confronting and dismantling the structures working against them[59].

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[58] Note that Freire uses the same language as Augusto Boal, John Grierson, and Bill Nichols to describe a space wherein representation (filmic, textual, embodied) of reality is presented (rhetorically, ethically, didactically) and lived through by an audience. Each of the mentioned practitioners sees this space as a container of representation that a participant or audience has to sort through and create knowledge from.

[59] This aligns with the work of the League of Workers Theaters who sought to present the lives of workers as full of dramatic possibility in order to show their worker-students that they could liberate themselves from the oppressive conditions of their factories.

4.3 Tactics from Augusto Boal

Augusto Boal takes Freire's tactics and modifies them for performance to achieve embodied reflection and the rehearsal of social action. The form and need for this social action occur through identification. Participants, through these games, identify with the social action to take place and then consubstantiate it. Boal's repertoire of games for achieving this work is quite extensive. Instead of outlining every one of them, I have grouped them into four families of tactics—body, mind, media, and media space. Below, a general overview is provided with four examples for each family. There are many additional manuals for dramaturgs interested in implementing Theatre of the Oppressed from start to finish. This section surveys only some tactics for discussion.

4.3.1 *Tactics for Media Actualities*

Boal showed particular sensitivity to his workshops' space. He abhorred hierarchies in performance space. The bourgeois theatre with its boxes and sections was an affront to his Marxist ideals. The goal was to bring disparate groups together an get them to identify with one another, with each other's stories, and then help them to perform consubstantial action. A partitioned performance space is an obstacle to this work. As his practice developed, Boal evolved his requirement of flat, minimalist spaces to include set design techniques for facilitating his didactic theater activities.

4.3.1.1 Tactics for Media Space

Boal's minimalist performance space did not include an expansive stage. Instead, Boal's stage is an imagined performative platform. It is a space where two or more participants engage in a critical dialogue with one another. It is a space set apart, a place of re-presentation. The group of participants designates its borders through a fascicle gesture or phrase. On the stage, participants are free to explore without the constraints of time or space. To quote Boal, in this state "anything is possible" [18]. It is an aesthetic and didactic space that embodies extreme creativity and freedom of expression because of its plasticity. It is where theatre becomes knowledge through identification. How participants work through the space to represent reality creates a plenitude of stories that can be identified by others and consubstantiate into social action [7] [136][60].

4.3.2 *Tactics for Media*

Boal's methods are minimalistic and often only rely upon the human body and an individual's ingenuity. Using media as an artifact, Boal encouraged the examination of its embodied oppressive themes through acting and improvisation. Boal's *Theatre of the Oppressed* began with tactics in Newspaper Theatre.

4.3.2.1 Newspaper Theatre

[60] Each participant produces knowledge through their memories and imagination in regard to the event being represented. This is a reciprocal process in which the memories inspire the imagination and the imagination recalls more memories. The result of the process is a story that may be identifiable to others.

Using the newspaper became a valuable way to identify and deconstruct myths in society. One of Boal's first tactics was to find two separate accounts of the same event from different papers. The participants in the scene would then take turns reading the articles' sentence by sentence. Their co-created discordant oral text becomes the material for dissection and identification. Activated spectators may ask why a particular newspaper published the story one way while another chose a different perspective. However, others may disagree with both newspaper accounts altogether. The community itself has a story as well: one that may be more valid.

Instead of reading the article sentence by sentence, Boal encouraged his protagonists to read the stories simultaneously. The cacophony of re-presentation, the senseless noise of two people speaking over one another, motivates other participants to intervene. Another option is to read only part of the headlines, leaving the audience to improvise the rest. There are many other tactics. Their requisite methodologies can be found below in Table 7 [7].

Table 7 Tactics from Newspaper Theatre

Tactic	Method
Connected Reading	Contradicting articles are read one after the other or simultaneously.
Mimed & Improvised Reading	Protagonists improvise or act-out the news in caricature
Defining	The most common terms in the news story are acted out.
Context Reading	News pieces that are light on the details and have 'clickbait' headlines are improvised by the audience.

In addition to newspapers, Boal also made use of physical objects and "masks" as part of his Theatre of the Oppressed [18] [7]. He would place the objects in question around a room. They might be a teacup, a book, a lamp—any physical object with which the participants can engage. As part of the game, the unconventional objects are multiplied or put in unique relationships in order to generate a discussion. The positions of the objects with one another can be identified, by the audience, as part of an argument with which they agree.

Games of mask and ritual, Mask Theatre, are about materializing other people's identities and roles through the creation of physical or imagined masks. It is important to recognize that the assumption of these identities as masks does not mean engaging in caricature. The goal is to reproduce the inner motivation which drives the actor to be who he or she is. In this sense, Boal adopts Aristotle's definition of imitation [3]. The goal is to get at the internalized driving force that is resulting in a particular external behavior. Take

the example of the schoolyard bully. His aggression and violence toward others may result from feelings of neglect or isolation at home. The actor should strive to imitate those feelings of neglect and emotion, not just the surface aggression.

Table 8 Object and Mask Theatre

Tactic	Method
The Found Object	Each participant chooses five objects and places them around the room. The other participant's ask questions about the objects and the distances between them. In a second round, participants move their objects in relation to one another's sets.
Follow the Master	A participant begins talking and acting as they would normally. The other participants attempt to mimic the role of the main participant as it appears to them. This is not a caricature but an effort to act-out another's perceived motivation
Master Metamorphosis	Two participants begin a discussion or argument. They each have a team of followers that create the respective role or mask of their master. Each master must then interpret and then imitate the role being enacted by the other's followers. In this way, each group begins to mimic the other.
Mask, Ritual, Motivation	A participant chooses a scene of oppression from their own life and explains it in detail to the other participants. They, in kind, ask clarifying questions to establish as many details as possible. In the first phase, the participants role-play the scene. In the second phase, they close their eyes and verbalize their motivations behind their behavior in the scene. In the last phase, the participants imitate the main participant's mask. The main participant's scene is rehearsed again and the masks and motivations reveal their oppressive natures in the ritual.

4.3.2.2 Image and Forum Theatre

Boal's use of the word image has two meanings. The first refers to the classic conception of a photograph or painting. A visual representation of an event via a medium, whether it be a polaroid or a picture via a mobile phone does not matter. The second refers to a different kind of image entirely; the only medium is that of the activated participants' bodies engaged in various actions to create an image [18] [7]. This meaning of image is an embodied representation. The goal of Image Theatre is to invite the spectators to interrogate the polysemy of images. Both a photograph and a scene composed of activated spectators is nothing but a reflection for Boal. Each of the spectators will find or imbue their own memories, creativity, and emotions onto the images to create a NF representation of reality.

The following tactics are meant to externalize that internalized process for the group. This divulgence enables identification to take place between them and their created scene. Participants are encouraged to understand the multiplicity of meanings surrounding these images, to engage in a critical reflection around them, and expand their openness to new perspectives. The tactics here are separated into warmups for Image Theatre in Table 9 and practice tactics in Table 10.

Forum Theater, an offshoot of Image Theater, utilizes the same tactics with one addition. Instead of the image constructed on the stage being still, it moves and can be modified at any time by any of the participants. This theater game is a form of simultaneous dialectic dramaturgy to identify all possible solutions to oppression [7].

Table 9 Warmups for Image Theatre

Tactic	Method
Complete the Image	At a rapid tempo, partners should hold hands and freeze into an image. Other participants should define what is happening in the image in as many ways as they can. The director should then encourage one partner to unfreeze and switch positions and freeze again. The goal is to establish a dialog of images where each partner completes the half-image of the other.
The Feared and Protectors	Without speaking, each participant chooses a peer in the group that they fear. They then try to avoid that person without letting them know. Next, the participants choose a protector. They must keep this protector between them and the one they fear without letting either know. After a countdown, the scene freezes and the participants are encouraged to discuss the experience.
Atmosphere of Snow	The participant is told to envision that reality can be sculpted as if it were snow and clay. They should create a scene an action of oppression. Further, they should be encouraged to use the entirety of their body. The action and object are then passed to another participant who changes them. The participants then discuss why they changed the object and action the way they did.
The Three Wishes	A main participant is asked to develop a scene of oppression. They then are able to change the scene in three ways, carefully choosing which thing to change first, second, and third. The other participants in the scene should note what the main participant chose first. The participants in the scene should resist the changes by the main participant. In the second phase, the participants should suggest alternate changes to the scene. In the last phase, the scene is acted out again in its original oppressive state.

Whereas the warmup tactics involved the development of scenes and then the re-presentation of them, practical tactics engage in dynamizations, a constant evolution of the themes. Each dynamization occurs in three stages and is meant to add a new facet to the representation. This new knowledge is exposed better by a group than an individual. The goal is to be both expansive and inclusive in order to develop a polyvocal vision which is objective, which is to say, consubstantial through participants' identification with one

another and not an external group. In Forum Theatre, a scene with a scripted core sets the foundation for the rest of the exercises and for the groups of participants. In Image Theater, a scripted core is not necessary, and the main participant can set the foundational scene [7] [136].

Table 10 Tactics for Image and Forum Theatre

Tactic	Method	Dynamizations
Illustrating the Subject with Your Body	The participants come to a consensus on a scene or oppressive theme. Each creates a scene without the other seeing. One after the other, they move their scene to a main stage. They make the image with only their bodies and no dialog. When everyone has shown their scene, the director asks if they have alternate images. Once these have been performed, the group can move to the dynamizations.	Individual, in unison, interrelated, become the oppressor
Image of Transition	The participants come to a consensus on a scene of oppression. The group then develops the ideal model of the scene in which no one is experiencing oppression. After which, the actors are asked to re-enact the oppressive image before moving on to dynamizations.	Individualized
Multiple Images of Oppression and Happiness	Similar to the other two but the goal is not to develop a unique image but multiple images. Participants work in small groups to develop a series of non-repetitive images. The participants then move through various dynamizations of the oppressive images. Participants should be considered to look outside their oppressive images for solutions. Once the dynamizations are complete, alternative participants sculpt an image of happiness. Participants choose, individually, which created scene is the happiest and who is the happiest there within. The dynamizations are then run through once more	Enter the Image, Clarify the Image, Effect the Transition, Character-motivated Transition,
The Cop in the Head	A participant gives an image of their oppression. After five minutes, each participant in the scene must voice their inner-monologue. Everyone must stay froze. Each must develop an inner-monologue. After five more minutes, while still frozen, the participants begin speaking with one another. After five more minutes, without speaking, the actors unfreeze and begin acting. These movements should be taken in slow-motion and analyzed.	Monologues, Dialogs, Silent Action

4.3.2.3 Tactics for Activating the Body

Given Boal's minimalist stage and his philosophy of embodied action, activating the participant's body is critical. The exercises in Image and Forum theatre highlight this. However, before engaging in either kind of theatre, Boal provides a series of tactics for the body meant to connect physical senses to both internal and external life. They are part of the warm-up in order to reduce friction among the group or as the main activity in themselves. The primary goal is to rediscover one's body and its relationship with its psyche. The tactics for each can are below.

4.3.2.4 Body Theatre: Exercises, Walks, Massages, Games, and Gravity

The first set of tactics is meant to re-orient the participant's perception to what they touch. They are meant to drive awareness beyond the mechanization of the act—beyond its mere physicality. Further, Boal recognized that the physical body's range of movement was related to the psyche of the individual. These exercises are meant to encourage the spectator to focus on controlling their body in new ways, exploring new movements and rhythms that they can take into their everyday life. These tactics are below in Table 11. [7]

Table 11 Tactics for Body Theatre

Tactic	Method
Colombian Hypnosis	The main participant holds out their hand in the direction of their partner participant's forehead. Their partner must move and contort their body to stay in line with the main participant's hand.
Pushing Against Each Other	Participants push their backs against one another while bending into a squat. They must try to stay upright and move together to support each other.
Circle of Knots	The participants clasp hands in a circle and move outward until their arms are fully stretched. They then do the inverse and try to become as knotted as possible. Participants begin using their body to construct an image.
Exquisite Corpse	They do not speak. Additional participants become part of the scene. Once everyone has added their body to the image, the initial participant verbalizes the story he intended. Each participant then proceeds to do the same.

4.3.2.5 Reconnecting Listening and Hearing

These tactics, in Table 12, encourage participants to listen more deeply with equanimity. The exercises are to help individuals discover the inner "rhythms" of those that speak to them. These rhythms are apart from what a participant may imagine of someone's self. They are not portraits built on cliché or previous experience. For Boal, the developed rhythm will give rise to identities of hate, love, or fear. [7]

Table 12 Tactics for Reconnecting Listening and Hearing

Tactic	Method
The Machine of Rhythms	An initial participant begins making a noise as part of a machine. Additional participants then become a part of the structure and make noises of their own. The director then encourages the initial participant to make his noise faster. Each of the proceeding participants should continue in kind until there is an "explosion".
Rhythms of Dialog	Participants pair off and begin talking about a topic of their choosing. The director then directs the participants to engage their conversation according to different musical rhythms.
Walk, Stop, Justify	A participant begins walking in a manner that enacts a particular role. Occasionally, the other participants call out for the main participant to stop and justify why they acting as they are.
The Peruvian Ball Game	Each participant pretends they are holding a ball and begins playing with it in a rhythmic manner with their whole body. Participants then walk around the space rehearsing their noise and motion with the ball. After a time, the participants find a partner and begin to play with one another. On the count of three, they exchange balls and adopt their partners sound and movements. This goes on once more and then the participants must discover who has their original ball and get it back. The game continues until everyone has their ball back.

4.3.2.6 Connecting Multiple Senses

The activated spectator is meant to have their eyes closed or be blindfolded during these exercises to help their individual senses connect. These tactics are in Table 13. All efforts should be made to safeguard participants from harm. Care should be given to remind people to move slowly and with mindfulness during the exercises. [7]

Table 13 Tactics for Connecting Multiple Senses

Tactic	Method
The Point-of-Focus and Embrace	The participant picks a point in the room and focuses on it. After a time, they close their eyes and move slowly toward that point. A second attempt is made with a more distant point. In the next phase, users shake hands, close their eyes and walk backwards. With their eyes still closer, they must rediscover their partner's hand.
Sea of Noises	Half the participants close their eyes. The others use noises to direct the others through a scene. For example, if the scene were in the kitchen, a participant might make the noise of a sink when the sightless participant walks by.
The Imaginary Journey	A blindfolded participant is lead on an imaginary journey through and over obstacles by a guide. The blinded participants are not allowed to do anything that they are not instructed to. After a few minutes, that some participant must tell their guide where they are in the room. The blinded participant relates their story about the journey and the guide does the same. They compare notes.
Space Games	These games involve filling all of the space in the room with objects and participants. The participants arrange themselves in the room at the behest of a main participant or the director. Whenever that individual says halt, all of the participants must freeze.

4.3.2.7 Reconnecting Sight to Perception

The following tactics in Table 14 are from Boal's mirror, sculpture, and puppet sequences. Save the Joker or facilitator's direction; the exercises are carried out in absolute silence. The goal is to establish a conversation through visual dialogs. These are patterns of movement which constitute a story. The exercises might be performed in isolation, but Boal strongly suggests that participants execute them in a sequence for maximum impact.

Further, the transition between exercises may result in fruitful moments for exploration. [7]

Table 14 Tactics for Reconnecting Sight to Perception

Tactic	Method
The Mirror Sequence	A participant enacts a role in a scenario in which they have or are experiencing oppression. Their partner than mirrors their movements and actions. First, this is done with the participant mirroring the first. Then, the participant inhabits the role of the oppressor. After a time, the two then swap roles. The exercise can then be done in groups. These groups then break the mirror by discussing alternative actions that break the sequence of events and frees everyone from oppression.
The Distorting and Narcissistic Mirror	In the first phase, the partners are mimicking one another. In the second, they respond in any way they choose. The experience should not be call and response but a continual flux of visual body movements. In the last phase, the users pretend they are seeing themselves as beautiful in the mirror. However, they only see their partner. It is within them and with their help that they'll find their happiness.
Restoring and Unifying Mirror	The director calls for all of the participants in the group to act as a single mirror for one individual. This complex task takes time and special consideration. After a time, however, the entire group will become synchronized.
Sculpting for Translation	Participants shift from the mimetic dialog of the mirror sequence to translating images through directing the body movements of others. Participants, touching or through gesture, try to impart as much detail as possible. This can be done through pairs or in a group.

4.3.2.8 Tactics for Activating the Mind

This set of tactics, in Table 15, is meant to surface deep-held beliefs about roles in society. Participants will come to the workshop with certain perspectives about teachers,

students, police, bureaucrats, and even their parents. These games are meant to re-engage and acknowledge these beliefs. The resurfacing and identification of such feelings may, in Boal's practice, lead to consubstantiated action. [7]

Table 15 Tactics for Memory, Emotion, and Imagination

Tactic	Method
The Embassy Ball	Each participant chooses an establishment role to perform at a ball at the embassy. One participant is a rebel playing a wait in the scene. At their command, a drug they've been serving as part of the roleplay causes the guest to reveal their truer selves. After a time, the heavier dose of the drug causes the participants to reveal more of the roles they are inhabiting. The third dose causes them to act in extremes. And, the final dose is an antidote, the participants act in the proper role of the establishment figure.
The Blank Oppressor	The main participant imagines a real person who is one of their oppressors. At the director's signal, the main participant begins recreating their oppressor through only their eyes for a partner. The director then encourages the participant to enact more of their oppressor, starting from their face to their whole body. They then move on to the sound of the voice, not the dialog, but the tenor and rhythm. Lastly, the participant moves to dialog. As the exercise comes to a close, the partner speaks first and tells the participant who they believe their oppressor is. Even when there's a discrepancy between the participants, what the partner perceives says something about oppressor the participant was roleplaying.
Memory of Oppression	Participants sit quietly in chairs and concentrating on successive isolated body movements. The director then encourages the participants to think backwards and recall everything that happened during an oppressive moment. Each detail should be accompanied with a bodily sensation, such as touch, smell, taste, visuals, or noise. The director continues to push the participant for more details. With the help of a partner, participants begin to imagine new actions that might be possible in the scene to free the main participant from oppression. All of the actions should be enacted or expressed by the main participant.
Waking the Dormant Part of Ourselves	Each participant writes down on a piece of paper three visions of themselves. They do not include their names. Another participant collects the pieces of paper and reads aloud what they discover.

4.4 Tactics from Jacob L. Moreno and Psychodrama

Jacob Moreno derived his psychodramatic tactics from his clinical experience as a psychoanalyst [6]. He shares many of the same tactics as Boal and Freire, but from the perspective of working with a patient in a group therapy setting. For example, he refers to his tactics as a set of protocols. His methods are akin to Image Theater but directed toward stories in the individual's life instead of in the community or society. He refers to the ambiguous space in which these relationships and the participant exist as a surplus reality[61].

> Surplus reality is only an analogous term; in our case, it means that there are certain invisible dimensions in the reality of living, not sufficiently experienced or expressed, and that is why we have to use surplus operations and surplus instruments to bring them out in our therapeutic setting

The surplus reality is a half-constructed actuality. It is a constructed representation of the world by an individual. The surplus reality, once mediated, is a testimonial by the individual. It becomes NF evidence that can be used by the therapist to engage with the participant. Through repeated sessions, the participant may find relief by identifying with the therapist's proposed, "reality of living." To that end, there are five instruments to

[61] Moreno's invocation of a "surplus reality" is similar to John Grierson's use of a "media actuality", Paulo Freire's "objectified reality", Augusto Boal's "gnostic space", and Bill Nichol's "axiographic space". All of these spaces are abstract conceptions of representation, rhetoric, ethics, and aesthetics connected to representing reality.

Moreno's psychodrama. They include the stage, the participant, the director, auxiliary egos, and the non-activated spectators.

For the sake of clarity, the director in the scene is the context setter, much like Boal's Joker. They can question what is happening in the scene and make changes to the participants' roles. Auxiliary egos are participants that are representative of people in the main participant's life. For example, a participant may play an individual's father or their friend. This auxiliary-ego participant becomes a mirror, a sounding board, with which the main participant can interact to explore a relationship. The goal for the director is to set the context and then recede into the background and allow the auxiliary-egos to begin working with the leading participant. Moreno suggests accomplishing this through warm-up exercises that rely on spontaneity and speed. The more engaged the participants become with one another, the easier the director can distance themselves from the main action and make room for more direct participation between the group on stage. The warm-up should encourage the group to actively work to push the director to outskirts of the participation.

4.4.1 *Tactics of the Stage*

Key to the development of psychodramatic situations is the spatialization of the scene on the stage [6]. The leading participant should make this spatial consideration. For example, if the scene for roleplay occurred in the participant's living room, the director and the other participants should ask where various items such as the couch, chairs, and coffee table are situated. An effort should be made to reconstruct the scene in the imagination of the other participants. The primary participant then either traces the objects

with gestures or place a representative object to marks its place. Like Boal, participants should mark the stage space's boundaries. Moreno believed that a stage could be anywhere from a warehouse to a classroom and marked as a special place where reality is plastic. It is a space that the main participant has the freedom to reshape. In a non-therapeutic sense, Boal echoes Moreno's conception of the stage place as a space of infinite possibility, where the invisible can be materialized and changed, where participants can overthrow their oppressors.

4.4.2 *Tactics of Activating the Body and Mind*

Keys to the effectiveness of Moreno's psychodrama are speed and spontaneity [6]. Moreno believed that in order to truly explore a participant's relationship requires a novel situation. The basis of the psychodramatic experience is a past or current story in the person's life. This personal moment is the documentary material. However, from this base story, a director and auxiliary-egos work toward the development of a situation that demands spontaneity. Beginning from a situation originating from the primary participant's life is chosen because it allows for the recognition of their existing patterns of behavior. Participants must break these patterns if action is to take place. A novel situation that has evolved from the source material affords opportunities for spontaneous action. For Moreno, said action is not a wild outburst but an expressive choice made in a moment of freedom. It is these spontaneous expressions that give rise to new patterns of behavior and break oppressive ones.

To encourage spontaneity, Moreno suggests increasing the tempo and rhythm of events and questions during roleplays. The goal is not to agitate the participant, but to be prepared with a line of questioning that helps drive them deeper into the scene or experience they are investigating. The auxiliary-ego participants should slowly shift the mode of questioning from the director to themselves. In this manner, the group generates spontaneity, directed toward the life of the primary participant, to identify and challenge patterns of behavior.

4.4.2.1 Sociometry

Moreno is well known for his sociometry game for visualizing how individuals relate to one another and a particular topic. It is meant to disclose the social space, the "affinities, attractions, and repulsions operating between persons and between persons and object." [6] It is a visualization technique that marks who is identifying with whom, with what. An example, a sociogram of a first-grade class, is in Figure 25. The exercise begins by marking where individuals are standing and to whom or what they are oriented. It then involves tracking their movement and how they interact as they are asked to participate with one another. For example, a group of babies and attendants were tracked by Moreno throughout the afternoon. The visualized paths in which the babies moved, the patterned way in which the explored with one another and their attendants, eventually differentiated from the patterns of interaction with objects. The visualization of the participants interacting becomes a social map of identifications. In a reflexive workshop, sociometry can be used to uncover conflict between others as well as their agency.

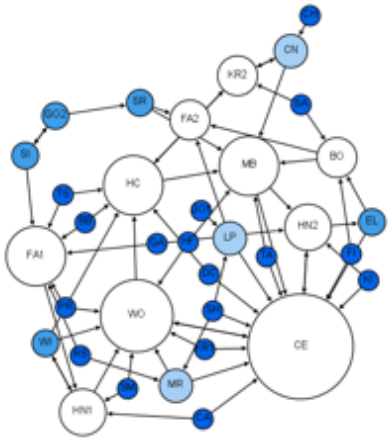

Figure 25 A Sociogram, a visualization of sociometry, of a first-grade classroom

4.4.3 *Tactics for the Development of Roles in Psychodramatic Roleplays*

Since Moreno's psychodrama relies upon participants inhabiting sensitive roles, he provides some protocols [6]. Firstly, the group negotiates these roles with the primary participant. The way the participants' views, for example, their boss, may differ from some employees. A negotiation of the role occurs as a participant takes it up. However, as with all groups, a consensus on the role may not be attainable. When such an instance occurs, Moreno suggests using two participants, each impersonating the other role, to explore how these manifest different patterns of behavior. For Moreno, a role may be rudimentarily developed, normally developed, or overdeveloped in the sense of its characteristics for it to become identifiable [6]. As such, said role might never actually be present in reality, or it may be present to one person and not another as in the previous example.

The identification of the roles enacted by the participants is formed via consensus and by the primary participant. Indeed, roles that have some degree of professionalization around them even contested roles such that of the teacher or police officer, come with an

agreed upon set of role characteristics. Roles that are confined in some way by cultural or legal strictures are more accessible to enact than others. However, directors and groups of participants who reflect upon the action after their experience can discover ways in which the roles they have constructed are the result of their patterned behaviors. This discussion of the participatory construction of roles may lead to progressively more detailed enactments.

4.5 Summary of Workshop Tactics

The previous section outlines and discussed a significant number of tactics from Freire, Boal, and Moreno. Many similarities are present. Before connecting the practices to the affordances of reality media, the similar practices are paired together as a cohesive set. The similarities can be broken down into tactics for directors, participants, media space.

4.5.1 *Tactics for Directors*

Most of the tactics for workshop facilitators come from Freire and Moreno. Boal, for the most part, is the directorial framing of Freire's pedagogical model. Where Freire discusses the educator, Boal reads the dramaturg and acts in kind. The tactics are bulleted below to make the information easily accessible to practitioners.

- First and foremost, the director should be upfront and honest with the intention of the workshop and the reason why they are doing the work. In the instance of INFW, it is to produce representations of reality through participatory performance tactics and activities to generate social change.

- The director should only set the context for the workshop and provide direction through its various phases. What the workshop addresses, what is to be its content, is decided by the participants.
- The director should not interrogate any participant directly but should ask about the scene or role the participant enacts. Alternatively, the director may motivate participants to engage in the questioning process through a warm-up.
- The director should seek to reframe the challenges of the world as problems and situations to be solved through the critical participatory-storytelling practice.
- A director should strive to move from the center of the practice to the outskirts, eventually being replaced by a participant before coming back for the critical reflection.
- Speed, rhythm, and tempo of direction and questions are tools of the director to generate spontaneous responses from participants enacting roles and constructing scenes.
- The director should approach the community and group with authentic love in their hearts and a desire to instill hope in the participants.

4.5.2 *Tactics to Activate Participants*

Each of the practitioners had tactics for activating spectators that ranged from dialog to comprehensive roleplays. Instead of rehashing all of the tactics, they are bulleted below into different categories based on their degree of performativity. The list begins with the least performative, the dialogic method of Freire.

- Equate critical reflection as a form of action to frame the discussions in the workshop as part of the participatory practice that authenticates a resulting experience.
- Empower participants to objectify reality and see themselves as part of a larger and mutable social reality. This reframing may mean engaging in tactics of alienation to develop a distance between the participant and their reality so that they may become objective.
- Re-present conflicts, structural injustices, and oppressive myths as challenges participants can overcome through participatory dialog. Enable participants to co-construct and re-present these myths themselves.
- Negotiate the characteristics of roles and personae in the lives of the participants to ascertain patterns of behavior within their relationships which may be oppressive. These roles may be hyperbolized or dampened to uncover spontaneous action.
- Utilize media artifacts with opposing viewpoints or accounts of situations to generate discussion and actions within the group through dialog or performance.
- Reconnect a participant to their senses, which in the course of everyday life, may have become mechanical and stale. Further, help them discover how the senses of their peers have become stunted.
- Guide participants to discover the inner-motivations of enacted roles through the use of Mask Theater.

- Direct participants through the reconstruction of a scene in its most oppressive and ideal using Image Theater. Do this on the level of the individual to discover patterns of oppression within their relationships. Facilitate it on the community and societal level to achieve a sense of group catharsis.
- When recreating scenes of oppression from an individual's personal life, begin with the original situation and then make it novel and unique to generate spontaneous, thus more authentic, actions.

4.5.3 *Tactics to Arrange a Media Actuality*

The concept of an aesthetic space for play and re-presentation of scenes affords an Interactive Non-fiction workshop's freedom of expression. These spaces can occur anywhere, whether it be in a corporate office or student center. What matters is that the space, for the participants, is set as a stage for experimentation. If working with a large group, a facilitator may construct and mark multiple stages. There are other vital tactics to consider when developing the space.

- The imaginations and memories of the participants will color the performance space, which should be minimalist to make room for their media compositions.
- The stage itself is timeless, the scenes that take place on it may exist in the past, present, or future.
- The stage must allow a participant to step outside the roleplay to view the contradictions that make up the dichotomy of the scene on stage and their present condition.

- The objects that make up the scene should be placed or gestured to on the stage by the primary participant, but the other participants should interrogate their placement.
- Exists beyond media affordances and computation to encompass physical props and structures.

4.6 Practical Articulations with Interactive Non-fiction Tactics

These tactics can be used with the media affordances of an INF experience to create a representation of reality. As these media change, so too do their affordances and rhetorical affordances to create these representations. Dayna Galloway's taxonomy for i-doc interaction paradigms, in Table 16, can be augmented to address how interactions in reality media travel across the reality-virtuality continuum, in Table 17 [137, 138, 139].

Table 16 Dayna Galloway's Interactions for Interactive Documentary

Interaction	Definition
Expansive or Immersive (E or I)	Expansive interactions utilize networks of users to deliver documentary experiences. Immersive interactions are associated with fully-embodied VR experiences. The experiences of INFW move freely between the two.
Active-adaptive or Passive-adaptive (AA or PA)	The difference between active and passive adaptive interactions are tied to user agency. If a user feels like they are actively changing the scene, the interactions are active adaptive. If the interactions are based off of data the user does not perceive, then they are passive adaptive. The user does not know how they are affecting the documentary material.

Table 17 Interaction Domain Summaries

Interaction Domain	Definition
Physical or Virtual Presence (PP or VP)	In what ways an experience is corporeally present. For example, AR shares a physical corporeal nature with its environment; VR is almost completely virtual.
Physical or Virtual Interaction (PI or VI)	The ways in which a user interacts with an experience. For example, a seated VR experience uses almost entirely virtual interactions through the controller. An AR experience using plane-detection on the street would have a range of physical interactions.

Unlike in filmic documentary, where scholars such as Bill Nichols [11] or Paul Ward may examine how different genres of documentary implement their rhetorical tactics, these tables look instead at how the interactions afforded by reality media might be composed to achieve a rhetorical effect [138] [137]. It is less about the content, then the participants' work through the media to use their voice as participation. In Table 18 below, these domains of interactions pair with the tactics discussed in the first half of this chapter. They are arranged in the three phases of an INFW for the sake of clarity.

Table 18 Classifications of Reality Media Interactions Paired with Participatory Performance Methods

Participatory Performance Tactics	Domain of Interaction	Family of Interactions	Example of Interaction
Warm-up Phases			
Body Theater	PP & VP PI & VI	AA & I	The user's movements are tracked by the device to create a spatial image in AR, the image is modified through the tracked movements of other participants.
Tactics for Multiple Senses	PP & VP PI	AA & I	Wearing an HMD displaying a diminished reality, participants move through AR noises and minimalist VR cityscapes designed by their workshop peers.
Tactics for Seeing and Perceiving	VP PI & VI	AA & E	The user creates A/VR scenes with artifacts or drawings but cannot speak, the scenes are modified or interacted with by a participant
Tactics for Listening and Hearing	PP & VP PI & VI	AA & E	The user's oral expressions are recorded by the device, modified or re-organized by the rules of the game, and commented upon by a partner.
Get to Know Each Other	PP PI	PA & E	Users interview one another in mode of a late night TV show host and a guest.
Practice Phase			
Image Theater	PP & VP PI & VI	AA & I	Scenes are sourced from the participants, re-presented using reality media artifacts as still images in VR, and are modified in a participatory mode.
Tactics for Memory and Emotion	PP & VP PI & VI	PA & I	Scenes are sourced from a participant, re-presented using reality media artifacts as still images in AR, and are modified in a participatory mode.

Table 18 Continued

Participatory Performance Tactics	Domain of Interaction	Family of Interactions	Example of Interaction
Forum Theater	PP & VP PI & VI	AA & I	Scenes are sourced from the participants, re-presented using reality media artifacts, and modified in a participatory mode through the direction of the Joker.
Object and Mask Theater	VP PI & VI	AA & E	Masks and objects are chosen by a participant from an inventory of digital artifacts, arranged or worn in AR by the individual, and modified by a partner.
Newspaper Theater	VP PI & VI	AA & E	Newspaper headlines are sourced using an API, displayed using reality media, and modified in a participatory mode.
Cool Down Phase			
Sculpture Theater	PP & VP PI & VI	AA & I	Participants leave the workshop to construct an AR sculpture of their experience within the community.
Discussion	PP PI	AA & E	Participants sit in a fishbowl in the center of the group and discuss how they felt during the workshop.

Reviewing the above Table 18, Passive-adaptive tactics are used primarily to source and implement documentary material from the reality of the participants. Further, the same information is then used, through reality media, to express one's perception of the event in later phases. Participants implement the Active-adaptive affordances to this end. By way of example, an Image Theater exercise in which the main participant has sourced documentary material via the New York Times API uses Passive-Adaptive and Expansive interactions that occur in the Virtual Domain. When the main participant begins co-creating

with the material through reality media, they are engaging in Active-adaptive and Immersive interactions that have presence and interactions in both the virtual and physical domains. If a participant outside of the primary participant uses a device to view the constructed actuality, they engage in an Immersive scene that is Active-adaptive.

4.7 Tactics for Reality Media

Some participatory tactics for the use of reality media can be put forward as part of an INF's rhetoric. These tactics, in tandem with the tactics for directors, media space, and participants are used as discussed in this chapter. The current affordances of reality media and technologies connect to these same participatory tactics.

- As part of the expansive process of gathering documentary material, include APIs in the mobile app that utilize information that is representative of the community's social reality. These contribute to identifiability.
- Before beginning the workshop, develop an inventory of 3D models of objects and themes based on real-world objects in the community through photogrammetry to create identifiable scenes.
- Work with stakeholders within the community to ascertain enough mobile devices and HMD's for use in the workshop. Do not assume that everyone will come with a device capable of an app utilizing emerging media.
- Ensure that AR beacons and VR lighthouses frame the performance stages to create a media actuality (gnostic space). Ensure that participants have enough room for locomotion.

- In AR and VR, materialized actualities must be shared, not individual, and mutable through the participation of other participants. Consubstantiality through the emerging media is not possible unless the performance space is inclusive.
- Reality media does not only consist of what is identifiable outside of the workshop space, but within it as well. The users should be able to record, manipulate, and implement media documented during the workshop.
- In order to protect the privacy of those not in the workshop, the design of the IN should not implement social APIs. A participant should consider creating an abstraction of an individual they consider their oppressor.
- Reality media should actualize outside of the workshop just like the participants' actions. INFW experiences should move outside of the theater space and extend its possibilities into the community.
- The affordances of the devices to track interactions and movement should be used to motivate participation in the INFW.
- Whenever possible, experiences should move from the virtual end of the spectrum into the physical. The alternative actions implemented in the materialized actuality through media should be guided into physical reality and actuated.

This chapter outlined how performance tactics and activities can be used as part of an INF experience's rhetoric. They frame digital NF material as mutable, tangible and negotiable through reality media in the INFW. The result is a flexible, plastic actuality that becomes identifiable through the INF interface and the performance tactics of Freire, Moreno, and Boal. Their participatory activities focused on and around the NF material,

encourage unity in the community through the reflective co-production of knowledge and stories. This participatory process is meant to result in identifiable representations of reality that motivate consubstantiated action, an acting-together through the media experience. For the participant, being able to interact with material trough reality media empowers them to express their perspective in new, potentially more identifiable ways. When combined with the re-presentations of their peers, participants can identify and address a group's shared reality.

CHAPTER 5. DESIGN OF THE APP AND INTERACTIVE NON-FICTION WORKSHOP

Since the 1920s, non-fiction storytellers such as Erwin Piscator, the League of Workers Theaters, the Workers Film and Photo League, Augusto Boal, Jacob Moreno, Newsreel, Chris Milk and Nonny de la Peña have utilized emerging media create NF representations of reality. The affordances of these media have been used, along with performance activities, to rhetorically to make their representations identifiable to audiences and users.

INF experiences focused on communities are now using the affordances of reality media. To ascertain how individuals use the media to create representations of reality that create knowledge and encourage audiences to act, a controlled experiment was conducted with a custom mobile app, called Our Reality (OR), in an Interactive Non-fiction Workshop (INFW). The practice and artifact are the materialization and operationalization of insights from documentary theory and historical case studies. The process of creating with the OR app in an INFW parallels the participatory storytelling activities of Boal with the intention of creating an identifiable representations of reality that could lead to social action.

Participants use rhetorical mechanics, inclusive of realist enargia, polyvocal epiploce, and the auratic presence—through OR app interactions to identify with one another and with documentary material. The affordances of reality media are used by workshop participants to marshal the physical environment and situated digital content as evidence for their representations of reality. The rhetorical use of these affordances results

in a shared media actuality that can be changed by participants. It is a space where reality appears mutable through the manipulation of 3D objects in mixed reality. Key to this process is the participant recognizing that they have the agency to change the world around them through the placement and alteration of the 3D material and physical environment. Once the objects, representative of NF material are arranged by a user, they can be identified by their peers. The goal of the app and workshop is to motivate social action.

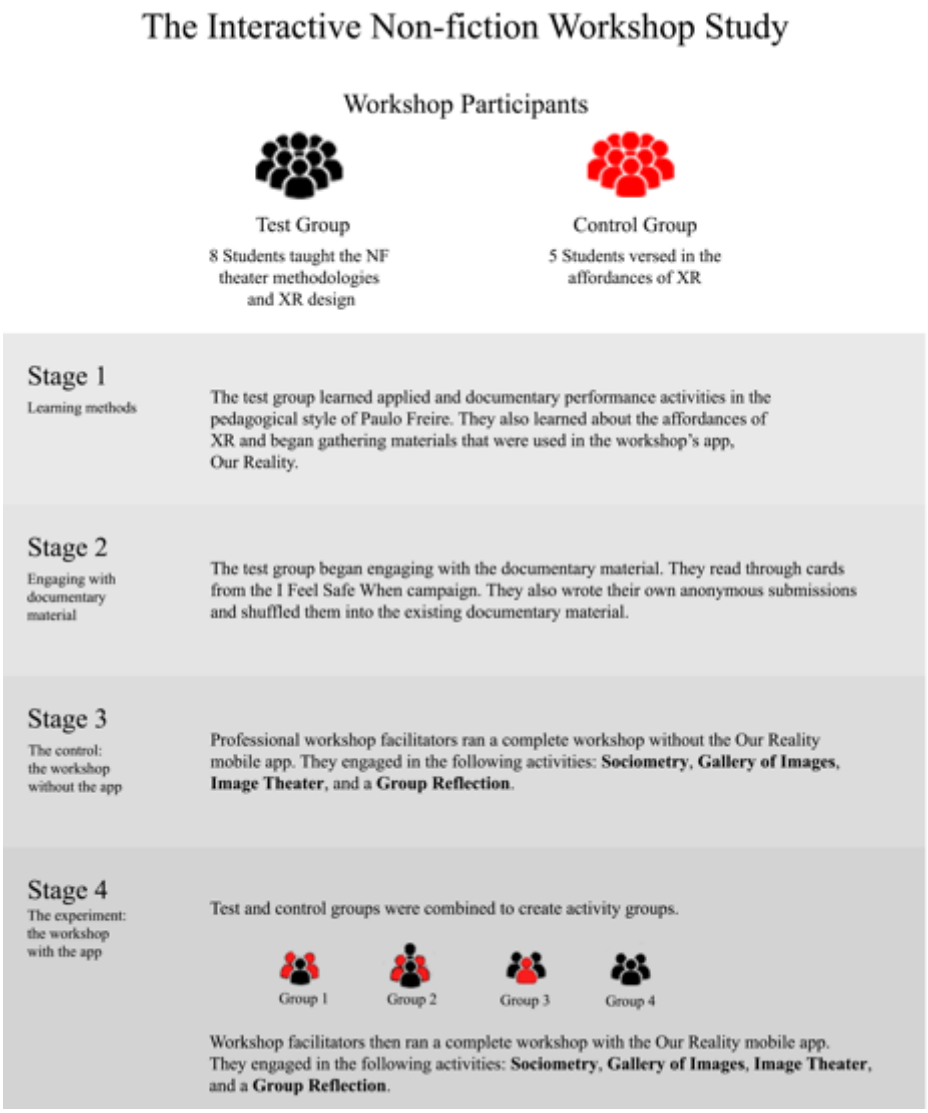

Figure 26 The experimental design of the INFW workshops

The controlled experiment, shown in Figure 26, involved two groups of undergraduate students engaging in one distinct non-digital workshop and one that utilized the custom app, OR. In both workshops, participants engaged in four activities. Each workshop began with reading through and sorting the workshop's documentary material. For the INFW, students employed anonymous testimonials about safety on campus.

Following this activity, students traced their relationship to the documentary material. They did this through the sociometry game. After, students engaged in the game, Gallery of Images. In this game, a student would sculpt a single individual into a sculpture representing their understanding of the documentary material. The final activity was Augusto Boal's Image Theater. The OR app was designed to facilitate these experiences, to enable participants to use rhetorical affordances, as part of the workshop.

5.1 The Interface Design of the Our Reality App

The design process of the OR app was value-based and informed by contemporary mobile design principles. The process was iterative, with three prototypes developed over nine months. Further, various insights were elucidated for interaction design through reality media. Specific design choices were then connected to theories of INF and rhetorical affordances for the creation of knowledge. The design of the OR app began with a prototype called Invisible Cities.

5.1.1 *The Foundational Prototype: Invisible Cities*

Invisible Cities is a community-arts creation AR app created with the support of a Creative Curriculum Initiative grant from the Office of the Arts at the Georgia Institute of Technology. I led a research team of seven undergraduate and one master's student in a vertically integrated program for research in the Augmented Environments Lab. I oversaw and directed the design and development process. The research team derived design insights from completing a competitive analysis, affinity diagrams, interviews, and user storyboards [140]. The project was and continues to be grassroots. Thirty undergraduate students were interviewed about how they would prefer to create AR art on location by undergraduate researchers.

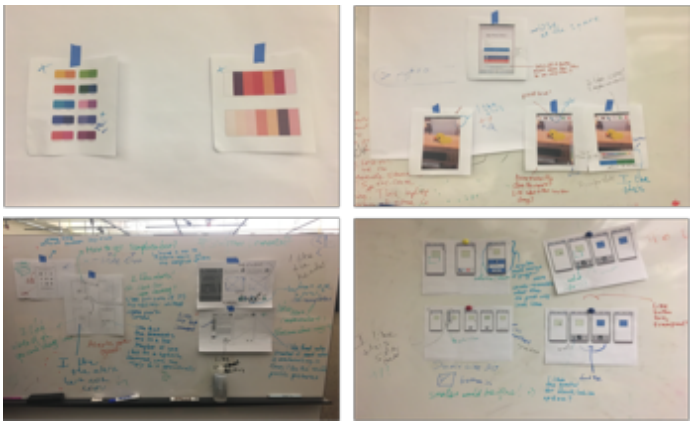

Figure 27 Part of the design process for Invisible Cities

Students learned what their peers expected from an app that enabled them to create locative AR on campus. First and foremost, students wanted to be able to comment upon their peers' AR creations and share their own. Second, it was not enough that the art was on location. Students expected their AR sculptures to respond in some way to the physical environment. Third, students expressed interest in building sculptures like in the game Minecraft. Subsequently, they wanted to be able to change the properties of their cube. This desire included changing a cube's dimensions, rotation, location, color, and texture. Students in the Augmented Environments Lab then engaged in an iterative design process that included wireframes, paper prototypes, and interactive models. This process is shown in figure 27.

Through the process, the research team discovered how users create art through AR. The team discovered that users do not often move around their AR work, even though it is spatially oriented. Users wanted to create in a non-AR setting (a 3D creative suite), and then once their work was complete, turn it into AR. Further, the team learned that notifications or feedback that let people know that AR was around was helpful for both engaging with work but also creating new pieces. Lastly, regarding curation, the research

team learned that a grassroots method that enabled self-governance, when paired with a curatorial board of students, was a valid mechanism. These insights allowed me to derive design choices for the OR app. Previous work validated the interactions that afforded the app's creation. After all, the OR app builds upon the creative suite developed for the Invisible Cities project. For example, take the affinity board in figure 28.

Figure 28 Affinity Board for Invisible Cities

An affinity board is a deductive interaction design tool for arriving at overarching design themes. Looking at the top layer, the abstracted themes apply to a wide range of creative AR tools. The OR app was designed to fulfill users' desires for clear and useful guidance, a shared experience with others, and a simple UI for editing 3D objects. Seven of the eleven second-order themes are in the design of the interface and interaction design. Looking at the bottom-most tier, 17 of the 40 stories, those most broadly associated with creating in AR, were integrated into the use of the OR app.

5.1.2 *Implementing Design Insights into the Our Reality App*

The OR app uses the design insights for AR creation from Invisible Cities and relates them to INF performance activities. These are shown in Figure 29. At the top level, user tasks are each one of the INFW theater games in which users participated. The user tasks connect to how users create representations of the documentary material through those games. Lastly, the user stories are about specific interactions to achieve those tasks.

For example, take the Sociometry Game (performance activity). In sociometry, participants create a visualized path of their relationships with one another and with the documentary material. It is an activity that can result in spatial-visual maps of identification. For this to occur, users need to create an AR trail that follows their movement (user tasks), and so need to be able to choose a color, begin and stop the AR ink flow, draw in six degrees of freedom, and see each other's work (user stories). The design had to take advantage of the affordances of mobile reality media for effective interactions to achieve this work.

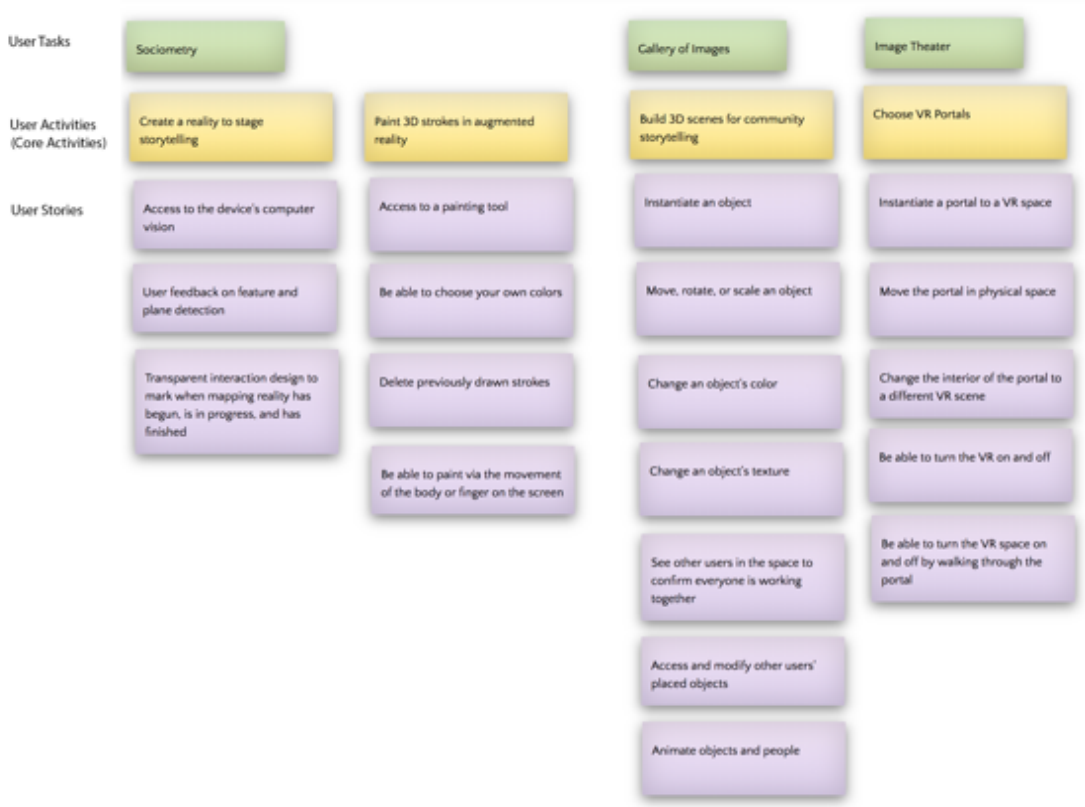

Figure 29. User tasks and stories as part of the design research for the OR app

5.1.3 *The Our Reality App's Final Interface Design*

The interface design was based on contemporary mobile design requirements for iOS. As with many AR apps, the interface for OR had to be minimal to allow users the highest amount of access to the camera feed[62]. At the same time, it had to provide many creative tools that would enable users to work with one another to freely express

[62] It is through the camera feed that the digital-shared-feminist gaze is provided for the participant.

themselves. There are two main screens in the OR app—the home screen, and the creation screen[63].

Once a user has named their representation of reality, they substantiate it by mapping it to the existing physical space. The app relies on computer vision and feature detection for this work. Green squares appear and become more vibrant to indicate how well the room is mapped. This feedback can is shown in the fourth image in Figure 30. Before moving on, notice that all of the text overlain atop the camera feed is white with a black outline. This layering has been shown to improve readability in AR [141]. Lastly, once the actuality is mapped, the initial creative menu and tools appear, and the user has the option to "join reality." If they do not click that button, none of the AR elements they attempt to add to the scene will appear for everyone else. Users must make the intentional choice to join the space.

[63] The first two utilize Luba Lukova's *Dialogue* poster [171], in which two profiles face one another.

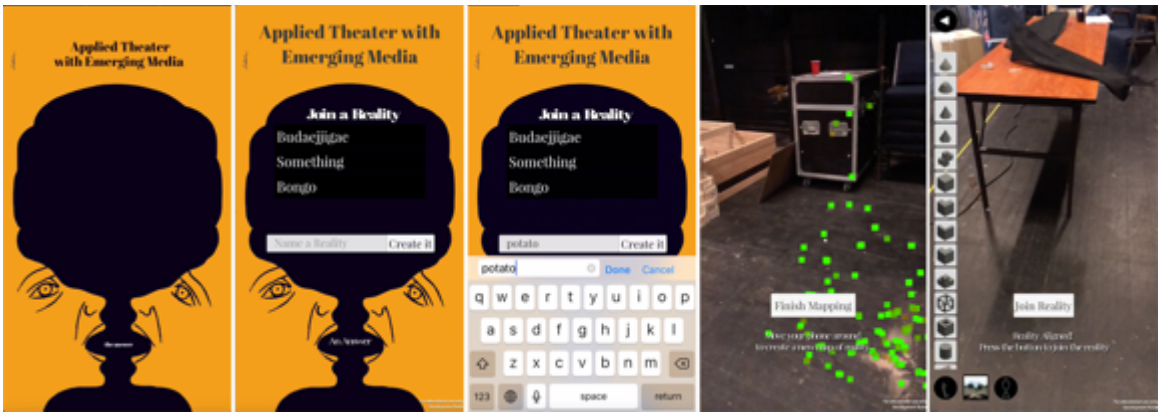

Figure 30 From right to left: the splash screen, which greets users; the home screen listing available realities to join; the home screen, showing a user creating a new reality; the mapping screen, displaying green squares for mapping feedback; and the final map.

After mapping their representation of reality, users can choose models, paint with AR, drop 360 portals, manipulate objects (scale, position, rotation, color, and texture), and animate 3D humans. A visual breakdown of the creative interface is in Figures 31 and 32. There are a lot of creative options available, but access to them is based on context. Some design papers have discussed the need for contextual menus related to AR content [142]. In mechanical engineering and architecture spaces, computer vision, machine learning, and proximity afford such menus. For example, a user approaching a broken-down car may first see a menu to diagnose the problem. As they look under the car's hood at the engine, a different menu might appear to highlight parts in need of repair. In this manner, the interactions afforded to the user are contextual to the moment in which they are engaged.

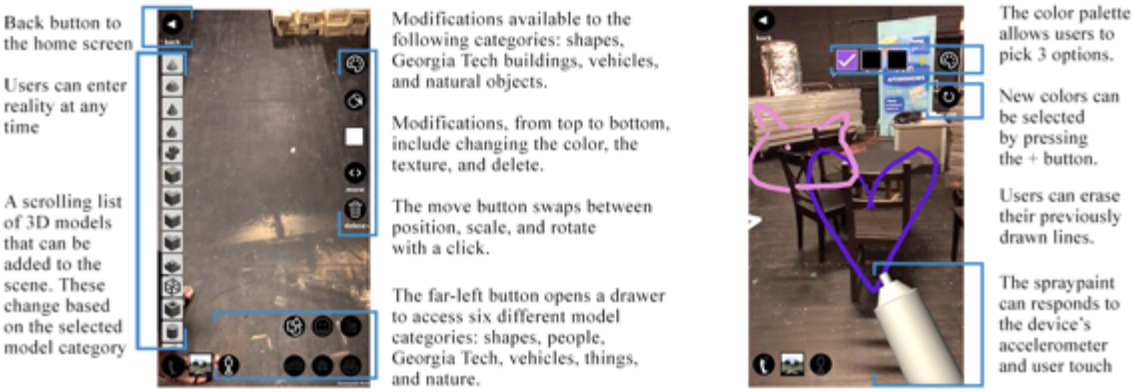

Figure 31 Two screens show the creative suite. On the left, the basic suite for 3D model manipulation. On the right, coloring in AR.

In the OR app, the colors of shapes, vehicles, buildings, and furniture can be changed, but the objects cannot be animated. On the other hand, human models can be animated, but their colors and textures cannot. Both hardware capacities and usability influenced this design choice[64]. The animations were broken down into idle, such as breathing or sitting; action, such as running or sulking; emotion, such as anger or frustration; interaction, such as shaking hands or waving; and unique, such as meditation or dancing. Expert participants helped choose which animations were in the app.

[64] For example, animating shapes is an abstract concept for many. The taxonomy of linear tweens and Bezier curves to describe animation paths is difficult to communicate through a spatial-visual interface. That said, pre-loaded animations related to expression and movement of the human body are easy to communicate visually. These were the only included animations.

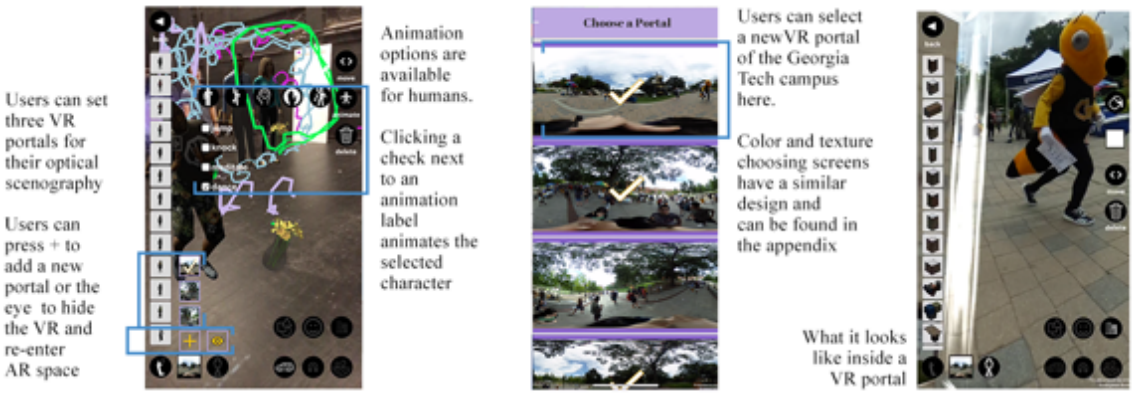

Figure 32 From right to left: animation option for 3D models and the portal interface, 360 panoramas taken by the students as part of the workshop, and standing inside a 360 portal of Georgia Tech's campus.

5.2 The Interaction Design of the Our Reality App

When designing the OR app, I drew upon my previous work on XR interaction design [139, 143, 144]. Through previous research, I developed some strong concepts related to design mechanisms through these media for storytelling purposes. I then connected these strong concepts[65] to my belief that reality media's affordances can be used to create a foundation of evidence that can make representations more identifiable

The first strong concept I derived is for the immersive nature of the digital story in the physical world. Ideas in this group are related to mapping digital textures to walls and

[65] Strong concepts are used in the exploratory work designers do to develop solutions [172]. They are, "design elements abstracted beyond particular instances which have the potential to be appropriated […] to extend repertoires and enable new particular instantiations". Four characteristics define strong concepts. One, a strong concept must address an interactive behavior rather than a static appearance; two, it resides at the interface between technology and people while at the same time speaking to a use practice and behavior over time; three, it embodies a core design idea for various situations and potential domains; and four, it is situated on an abstraction level above particular instances. The strong concepts put forward are conceptual tools. [174].

the transparency of MR objects in the physical world [145]. This group is concerned with maintaining a believable flow [146] to present a cohesive MR interface that facilitates interactions. The second group of concepts supports the first but is solely interaction based, focused on the configuration of MR for an INF experience, the relation of an interaction to the physical space, and the relation of an interaction with a physical or digital object for story progression.

5.2.1 *Strong Concepts for the Configuration of a Mixed Reality Scene*

MR involves an active recognition of the environment and unlike VR, does not encompass it. Physical reality is ever-present in MR, even if aspects are digitally augmented. Subsequently, understanding how to design an MR experience for a setting that cannot be known by the designer requires strong concepts to address the mapping of space, recognition of physical objects, and their placement. MR requires the dynamic interaction between the user's position, device orientation, and the immediate physical reality to display content.

- **Real-Time Mapping.** Refers to simultaneous localization and mapping, known colloquially as SLAM [147], as the ability to chart and track movement in space. Yi-Fu Tuan's understanding of space and place, in which movement of the body within a space and the essential nature of space make a place, parallels the technology [148]. Real-Time Mapping is the digital assessment of physical reality for the output of an augmented or mixed reality; the fidelity of the input data can be manipulated by the MR designer to suit the needs of their experiences and interfaces [149]. The concept of Real Time Mapping emancipates the designer from the constraints of rendering complete settings while at the same time constraining them within the physical environment.

- **Optical Scenography.** This concept has its basis in the Bauhaus scenography of the 1920s. The scenography of the Bauhaus was a theater of totality, an "organism with the multifarious complexities of light, space, plane, form, motion, sound, man—and with all the possibilities for varying and combining these elements." [150] The human actors and audience were considered equals. For some dramaturgs, they were even subordinate to the mechanical and abstract properties of the stage. László Moholy-Nagy initially only wanted to create performances without human actors, relying entirely upon a mechanized composition of abstract colors, light, and sound. "He is no longer to be pivotal— as he is in traditional theatre— but is to be employed on an equal footing with the other formative media [150]. In MR, the user is made equal—it is only through the hardware that the user has access to the story and scene.

The way in which these displayed objects are in the physical world facilitates the flow between reality and virtuality [151]. Designers of MR interactive narratives develop stages without floors, relying instead on optical scenography, i.e., digital objects. In short, the dynamic interaction of the user with their MR device and their immediate physical reality affords a scneographic representation of reality.

The two strong concepts discussed in this section are afforded by hardware that is integral to supporting the myth of scientific inscription through the digital gaze. The computer vision from the camera, its capacity, for example, to map the physical space to create a stage, is not disputed by the user. While the algorithm may miss a corner or an edge, users do not dispute whether or not a map is created. As discussed earlier, the OR app uses tiny green squares that get more vibrant to help the user assess how well space is mapped. Further, users entering a created space and stage accept that they are in the same scenographic space as the users without question. This belief is further enforced by optical

scenography that they create, which informs the user that they are in a storytelling space. These include two different mechanisms, first, a particle system that glows when users are in the same space; and second, particle systems that represent active users in the scene. These are in Figure 33.

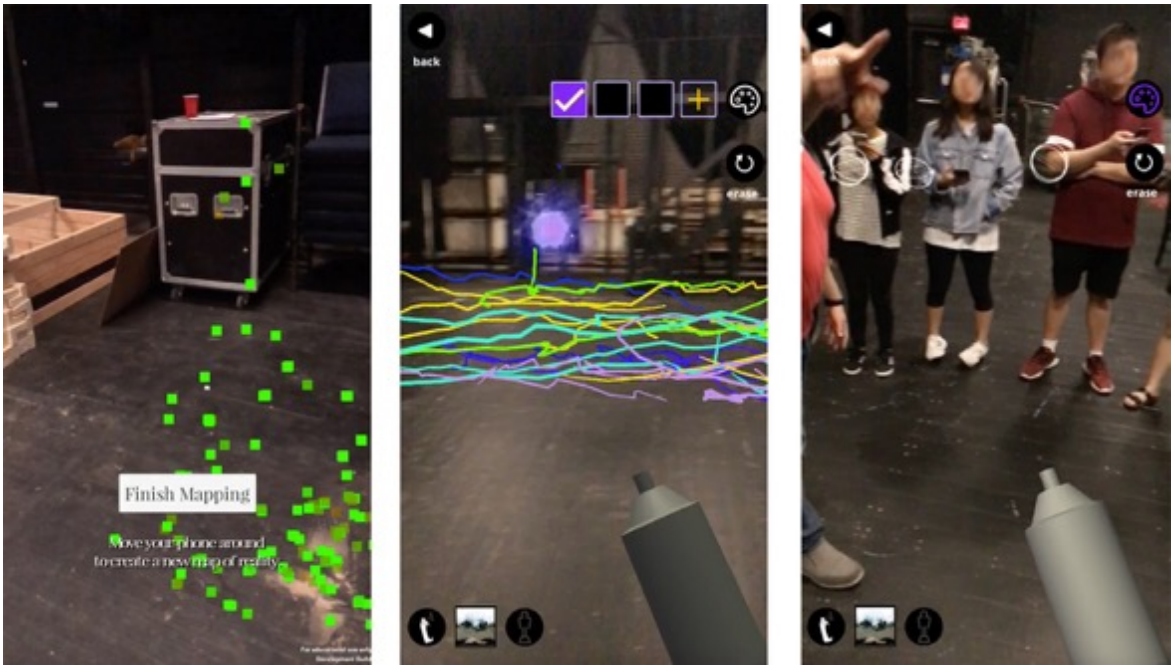

Figure 33 From left to right: screen one, the reality is successfully mapped to create the magic circle; the second screen, the glowing orb signifying a user is inside the magic circle; and the third screen, avatars representing individual users within the AR spa

The OR app has over 150 3D models that are part of the optical scenography. These models include basic shapes, various peoples and body types, nature elements, vehicles, household and school furniture, and the buildings on Georgia Tech's campus. Each of these models can be moved, scaled, or rotated in space to become part of the optical scenography of the practice. Further, photogrammetry was used to create the models of campus buildings. These models contain photography's myth of scientific inscription, and students participating in the workshop will see them as identifiable representations of these places.

5.2.2 *Strong Concepts for Mixed Reality Interactions with Physical Space*

Interactions in MR take place in a physical space but do not necessitate direct engagement with a digital object. The way a user behaves within an MR environment can impact the progression of a story. Movement through an MR-enabled space is generative. The technical affordances of GPS and wi-fi triangulation afford this process. It affords both Location Awareness and Generative Exploration. These concepts differ in that the former is about situating the user and the latter is about movement. Their implementation is critical to the user's relationship with the MR space.

- **Location Awareness.** This concept, based on the technical affordances, converges with theories of place-making put forward by Lev Manovich, Guy Debord, and the Situationist Movement [152, 153]. A user that accesses this content in a specific location garners a new understanding of the space's psychogeography [154]. For MR narratives, the psychogeography of a place might be considered the story's setting. Location awareness in MR is about augmenting the emotive aspects of a physical location to match the setting of the INF story. A foundational example, *The AR|AD Takeover* AR app works only within Times Square [154]. The psychogeography of the Square is ostensibly neo-liberal and capitalist; when a user utilizes the app, the billboards are replaced with works of art, altering the experience. However, it is not only a user's arrival at a location that generates new content; the journey *to* a location is also ripe for interaction.

- **Generative Exploration.** Voluntary movement affords opportunity and represents agency. Individuals traveling through the world engage in a series of non-verbal interactions. Humans act contextually to their environment, dodging a speeding car or jumping over a pothole. Translating this experience into an MR story means

conceptualizing voluntary physical movement as an interaction. Designers implementing the concept of generative exploration utilize logic, AI, or constraints to assess and direct user movements. This strategy connects natural user behavior to the generation of knowledge through representations. It lends support to the immersive nature of the MR narrative by affording embodied presence [155][66].

In the OR app, participants join pre-existing representation of reality within a 250-foot radius of their current position. Throughout their use of the application, their GPS position is mapped and tracked. This tracking is as much to coordinate their existence within the space as to ensure that the models that they place appear in the same position for everyone. This shared process enforces the digital-shared-feminist gaze in the experience. Further, each of these realities is time-stamped and geocached to anchor the experiences to the physical space and moment in time. Concretizing these mixed reality scenes in time and space makes them indexical [156]. I believe that utilizing this data makes an experience identifiable. It signals to the user that the particular scene was created by individuals, in a real physical space, over a particular time.

[66] In previously published work, I have connected this to the Bauhaus concept of R*aumempfindung*, a spectator's capacity to feel the space on a stage through the movement of actors and props [144].

Figure 34 An example of Georgia Tech's campus as a portal and seeing a workshop participant on the outside of the space.

The use of GPS and movement within the application enables students to move in and out of MR 360-portals. Computer vision anchors these portals to the ground. When a user walks through the portal, they are transported to a 360-panorama representing somewhere on campus. This is shown in Figure 34. They can walk through this space and enjoy a pseudo-VR experience. When they are ready, they can then walk outside of the portal to see their immediate physical space. 3D models and drawings made within the portal will stay in the portal and won't re-enter the immediate physical view of the user. Each portal becomes a small stage that users can utilize to create personalized representations of the same spots on campus.

5.2.2.1 Strong Concepts for Interactions with an Object

WIMP interfaces and touch interfaces do not generally support real-world interactions. They instead focus on human-computer interactions [157]. This approach presents a series of challenges and affordances for the MR designer, underscoring the necessity for a new brand of gesture-based interactions [158, 159]. Interactions with objects, those primarily used in the OR app, are part of a rhetorical discourse. As discussed in the previous chapter, they make up the documentary voice as participation—how users utilize the app's affordances to create a representation of reality with their peers. These interactions, whether physical or digital, facilitate new aspects of co-creation. How a gesture dispatches, this information is related to the strong concepts of freehand interaction, fingertip rays, and static and dynamic gestures.

- **Freehand Interaction.** Based on the concepts of encumbered and unencumbered VR put forward by Howard Rheingold, freehand interaction is the belief that all interactions in the MR world do not need a threshold object [160]. Since users utilize their hands to manipulate physical objects, they should be able to do so with digital objects. Each interaction is generative, tied into a system that drives the development of a story or scene.

- **Fingertip Rays.** Fingertip rays are for far space interactions [160]. The concept is an amalgam of the technical methods of ray casting and collision detection. Ray casting, is the projection of a line from a 2D point of interaction, such as a user touching an iPhone screen, into a 3D space to hit a digital object. Whereas collision detection is the recognition of that casted ray's hit. In MR, rays are cast by detecting the finger, its orientation, and depth in the environment [161]. The design of the ray casting system and how it operates can be understood through Merleau-Ponty’s abstract and concrete movements [162]. Designing ray casting systems regarding fingertips means collapsing both the virtual and objective body into one another.

The concrete body is, of course, the finger, but the virtual body, as if it were a passenger, rides through both the digital and physical world via the ray casting system. The abstract movement is actuated via a touch on a smartphone screen and may appear as ammo being shot, in RPGs as casting a spell, or in MR as merely pointing to and activating an item. In INFW, it was used for drawing with the 3D paint tool.

- **Static and Dynamic Gestures.** Reality is complicated: one does not drink from a bottle without unscrewing its cap, tilting it to the side, and then raising the bottle to one's lips. The concept of static and dynamic gestures posits that there are two kinds of interactions that occur in MR environments: static, in which the angles between the fingers do not move over time; and dynamic, in which the angles between fingers do indeed change [163].

These strong concepts make up the core of the creative process afforded through the OR app. Admittedly, the hardware utilized in the app does not allow for entirely unencumbered MR. The user does have to utilize their phone. However, the user's avatar does move through space with them and can be part of the INF story.

Fingertip rays are the primary method by which users interact with objects. Fingertip rays are utilized to instantiate objects in space, move, rotate, and scale them; change objects, their color, and textures; and delete objects. Each time an object is selected, haptic feedback is provided to imply the digital objects' presence. Further, users can select and change one another's objects to move them about the scene. Lastly, by holding their finger on the object users can "carry" the object with them through space. Additionally, users can draw in 3D space using their fingertip as a brush. These 3D lines, which

approximate the Tilt brush experience on the HTC Vive, enable multiple users to paint together.

5.3 The Design and Facilitation of the Interactive Non-fiction Workshop

The workshops for the dissertation study were part of a larger class on devised performance. I collaborated with the instructor of the course to develop an interdisciplinary curriculum. Our vision was a course that connected devised and documentary performance methodologies to an existing public service and art campaign on campus. Further, it was necessary to us that the affordances of reality media connected to this work. To achieve our vision, we received a Creative Curriculum Initiative grant from Georgia Tech's Office of the Arts. The funding allowed us to hire performance practitioners from all around the country. With the help of the Office of the Arts, we were also given access to materials from the "I Feel Safe When" campaign—an arts and service campaign that collected anonymous stories related to safety on campus.

As part of that campaign, existing students on campus and incoming freshman were given notecards with the prompt, "I Feel Safe When." They then filled out the card with a few words or sentences about when they felt safe, both off and on campus. Cards were filled out anonymously and dropped into collection containers by the students themselves. Facilitators never touched the cards. In total in 2017, there were 3000 responses, 2059 of which were considered unusable[67], which resulted in 941 cards. These cards were sorted

[67] Unusable cards were those that broke the rules of anonymity by identifying the writer or another person, made or involved threats of violence against others, were illegible or were deemed too vulgar by the Director of Arts at Tech, Madison Cario and the facilitating artist, Jennifer Edwards.

into 12 categories as part of a naturalistic inquiry into how students perceived those aspects of safety. These categories, along with their definitions and number of responses are in Table 19. The statements on these cards became the documentary material as part of the Interactive Non-fiction process. The core group of student participants enrolled in the course worked with professionals to turn them into narratives for the Theater of the Oppressed.

Table 19 Documentary Material of the IFSW Campaign

Safety Theme	Definition	Example	Number of Respondents
People/ Others	Makes reference to and is dependent on others	I'm with my family and friends	311
Emotional	Has to do with self, state of mind or state of being, evocative of emotion	My friends support me when I'm going through a rough time	75
Political/ Ethical	Expresses behaviors of believes practices that reflect specific political leanings or ethical mandates	People don't racially profile me for the color of my skin	33
Safety	Situations or circumstances that create a sense of safety (or an unsafe feeling)	The alleys are well lit	157
Physical	Conveys a narrative story that contains a tangible physical feeling	I hug those I love, the power of embrace feels very safe	46
Academic Preparedness	Pertains to completing class assignments, studying for exams, and school projects	My code doesn't have any bugs	10
Community	Being part of a group different from a friend group the sense of safety comes from a defined community	Differing opinions are welcomed and considered by all	124
Self	Contains statements that are completely self-reliant—reflects a complete autonomy in relationship to safety	I can depend on myself	37
Spiritual	Conveys certain reliance on religious or spiritual guidance or practice	I feel the presence of god with me	18
Place	Refers to a specific place (without people) primarily as a provider/ container for safety	I'm on campus	91
Material	Reflects material needs being met as a they pertain to a sense of safety: pertains to a sense of safety being filled by ones material needs being met	I have enough money for food	34
Escape	Refers to disappearing, being invisible, completely removing oneself from view.	I'm curled up in my blanket hidden from the world	5
		Total	941

5.3.1 *Workshop Participant Groups*

Two groups of students engaged in the workshop. They represent two different kinds of users. The first group was trained up as experts with a focus on community engagement, devised performance methodologies, and interaction design for AR. The other group was the control. The second group of students was comprised of computer science, electrical engineering, and computational media undergrads who are part of the Augmented Environments Lab. These students had experience creating augmented and mixed reality platforms but not for storytelling or community-engagement. Whereas the first group, the core students, learned three different performance activities, the control only learned *Theater of the Oppressed*.

5.3.1.1 Utilizing Moreno's Auxiliary-egos as Expert Participants

To see if Moreno's auxiliary-egos concept could be used to support storytelling through the OR app, the first group of students was trained up to be experts. A local actor and performance artist taught them both Viewpoints and Rasaboxes. These techniques highlights how a narrative or situation can be understood from multiple and diverse perspectives. Viewpoints originates from Mary Overlie 1970s work on movement improvisation. As a choreographer, her viewpoints of space, shape, time, emotion, movement, and story, are meant to give logical shape to a movement piece. Anne Bogart, who was working with Overlie at the time, utilizes the viewpoints for staging with actors. Specifically, the story aspect of Viewpoints addresses the "perceptual ability to see and understand logic system as an arrangement of collected information." In short, to see a story out of a composition of elements, media, and actors. Learning how to do this well was meant to prepare participants to identify with one another and the IFSW documentary material.

Rasaboxes, created by Richard Schechner, encourages actors to delve into the emotional composition of their scene. The practice occurs through eight rasas: surprise and wonder, love, fear and shame, disgust, revolt, courage, and the heroic, laughter and the comic, sadness and compassion, and rage. Squares drawn on the ground represent these rasas. Performers then move from one box to another using gesture, dance, and media to better comprehend their character or the composed scene. The practice is meant to help performers understand why their characters are feeling what they are feeling, and how they are feeling it. It achieves a level of emotional specificity that can result in identifiable expressions and scenes. For the engineering students in the class, these practices were novel ways to approach a seemingly ordinary topic like safety.

The first group of students received coding and interaction design lessons to learn about the affordances of XR for storytelling. They spent an hour with Jennifer Edwards, the creator of the I Feel Safe When campaign, to understand her vision. They then received a three-hour long intensive on narrative and storytelling. Students were trained to connect disparate and separate events into a cohesive narrative structure. Like Boal's didactic theater and Freire's pedagogical work, the students in Figure 35 began by drawing their non-fiction narratives. Throughout six weeks, this core group of students received an intensive education in devised performance and reality media design.

Figure 35 Expert participants learned non-fiction storytelling methods, such as how to construct visual documentaries of their life story through purely visual means.

Following Paulo Freire's framework, I intended to train students in the methods they needed to teach others in order to avoid a banking education methodology in which I would be the sole practitioner and facilitator of the experiences. In the same spirit, this core group of students chose which 3D models to use in AR, and they took 360-degree panoramas of campus. When Freire visited the communities he was going to help, he worked with their leaders to develop educational material that was directly related to their daily life. This grassroots process resulted in pamphlets on grammar and reading that were meaningful to participants [55]. The students in the workshop became the community leaders for Georgia Tech and the other workshop groups. They helped to design the app, its content, and then helped others use the OR app in the Interactive Non-fiction workshop.

The OR app was akin to Freire's pedagogical material and was used to support identification and consubstantiation.

5.3.2 *The Study Design*

The study was designed so that all three groups would engage in the following procedure. The study design is in Figure 36. First, they would learn the Theater of the Oppressed method. Next, they would begin playing with the OR app and complete a usability test. This test was meant to gauge their mastery of the tool before the process began. It is hypothesized that users who can express themselves more freely will feel like their stories are reflective of the documentary material and so be identifiable. After the usability test, students would engage in the INFW comprised of augmented *Theater of the Oppressed* exercises. When finished, all students filled out a Likert-scale and open-ended survey immediately after the experience. Within 48 hours, I interviewed each participant individually for roughly 15 minutes.

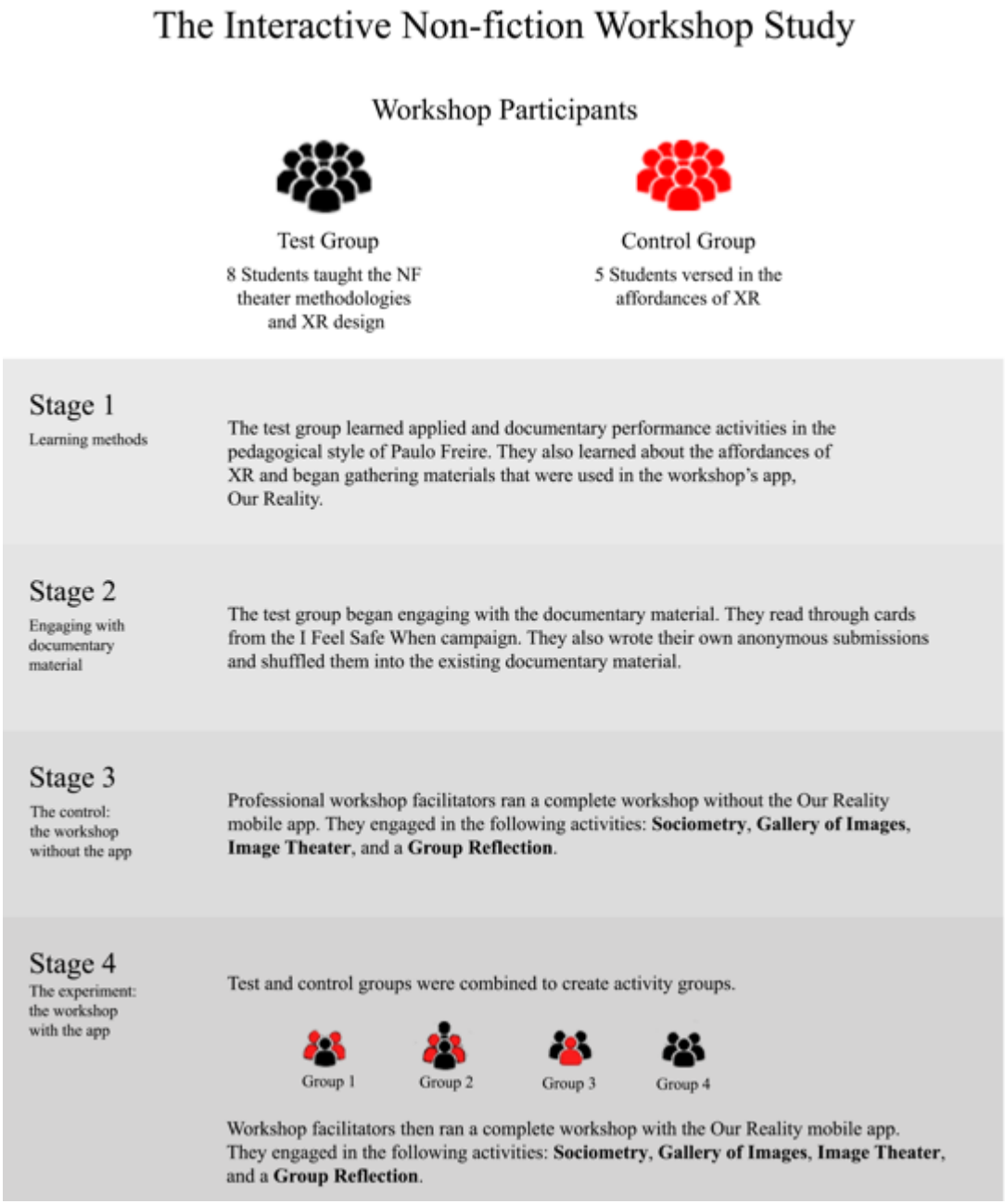

Figure 36 The Interactive Non-fiction Workshop Design

5.3.2.1 Interactive Non-fiction Workshop Activities

Dr. Ann Kilkelly and Sheila Kerrigan established the design and schedule of the Theater of the Oppressed workshop. Both studied and trained under Augusto Boal and his

son in New York City and Atlanta. Each workshop, whether in AR or not, involved sorting and looking through the IFSW card material. This process was to connect students to the body of documentary materials, stories from their peers about how they feel about safety. Once everyone got settled and was able to review the cards, Sheila Kerrigan and Dr. Kilkelly began each workshop by welcoming everyone and introducing themselves. In addition to the IRB's consent form, they then went and asked for everyone's consent to join the workshop, to embody different roles, and to speak honestly and authentically. This dialog included asking students to be conscientious about one another and the theme of safety on campus in general.

Sheila Kerrigan and Dr. Kilkelly were engaging in Paulo Freire's tactics to raise *conscientização*, moving one's perception from the naïve to critical consciousness. They would quickly set the tone for a problem-solving dialogue. Then, they would attempt to move the interchange from interrogation (in which participants learned about one another) to a free-flowing dialogue about safety on campus. To generate themes for stories, they had students write down stories or thematic elements from the IFSW cards to explore. This process aligned with Freire's tenet of grassroots co-creation of curricula. This practice was completed in the same way in the INFW workshop. The only difference, for the trained group, is that they picked a number of the models and took all of the 360 panoramas for the VR portals. In short, they contributed more to the curriculum and the INFW app's functionality.

After this practice, Sheila Kerrigan and Dr. Kilkelly led the students through a sociometry exercise in Figure 37. Students lined up between two binary options chosen by the facilitators. They positioned themselves concerning how they felt about the topic. Topics were banal at first, such as "early riser or night owl." They then moved to the "I Feel Safe When" cards. Options here were not diametric but represented a range of

statements. Following Freire, they were meant to connect the individual reality of the students with the social reality of the campus. This same procedure occurred in the INFW, but students drew their lines in AR as they walked. This affordance allowed them to materialize their paths and visualize how they were connected. It had the added benefit of connecting sight to perception, a goal of Boal [7]. When students stepped back and viewed their drawings they were able to perceive the complexity of the topic (safety on campus) and their place within it.

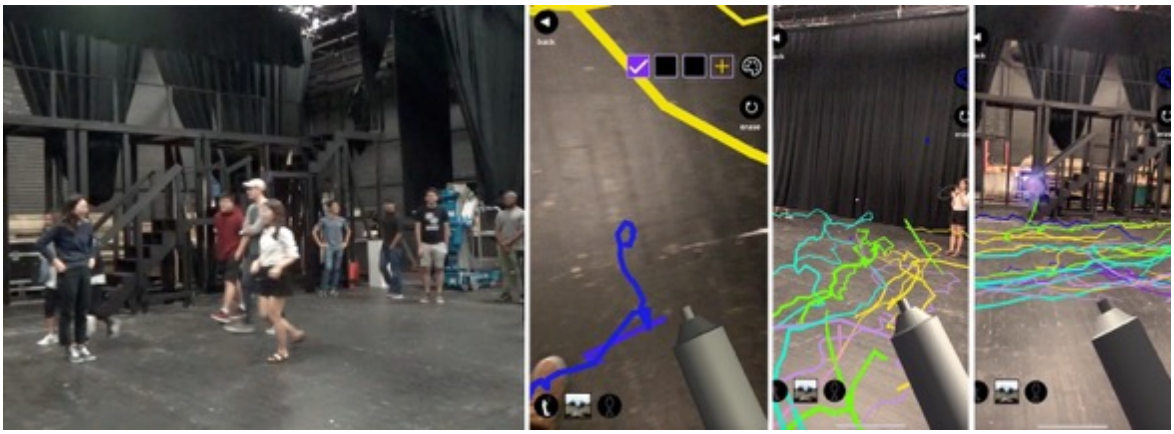

Figure 37 From left to right: image one, students experiencing sociometry without AR; image two, a user drawing their own line in AR; image three, a cross-sectional view of the lines created through AR sociometry; and image four, facing the AR lines made in the sociometry game.

Once the reflection on sociometry was wrapped up, Sheila Kerrigan and Dr. Kilkelly transitioned to a Gallery of Images exercise. In this instance, students got into two lines facing one another. Students in one line would approach the other and sculpt them into statues representing issues of safety. In Figure 38, the students sculpt each other into images representative of gun violence on campus. After one group finishes, the sculpting students meander through their peers, reflecting out loud with one another about what they are seeing. Once finished, the initial sculptors return to their line. The students who were just sculpted then activate and repeat the process. For AR, the process was repeated

similarly. While students could sculpt their peers, they could also use the OR app and all of its affordances. Instead of walking around the sculptures when finished, students peered into each other's phones to look at one another's creations. They then reflected on the experience. Once finished, they handed the phones over to the other line of students who then engaged in the activity.

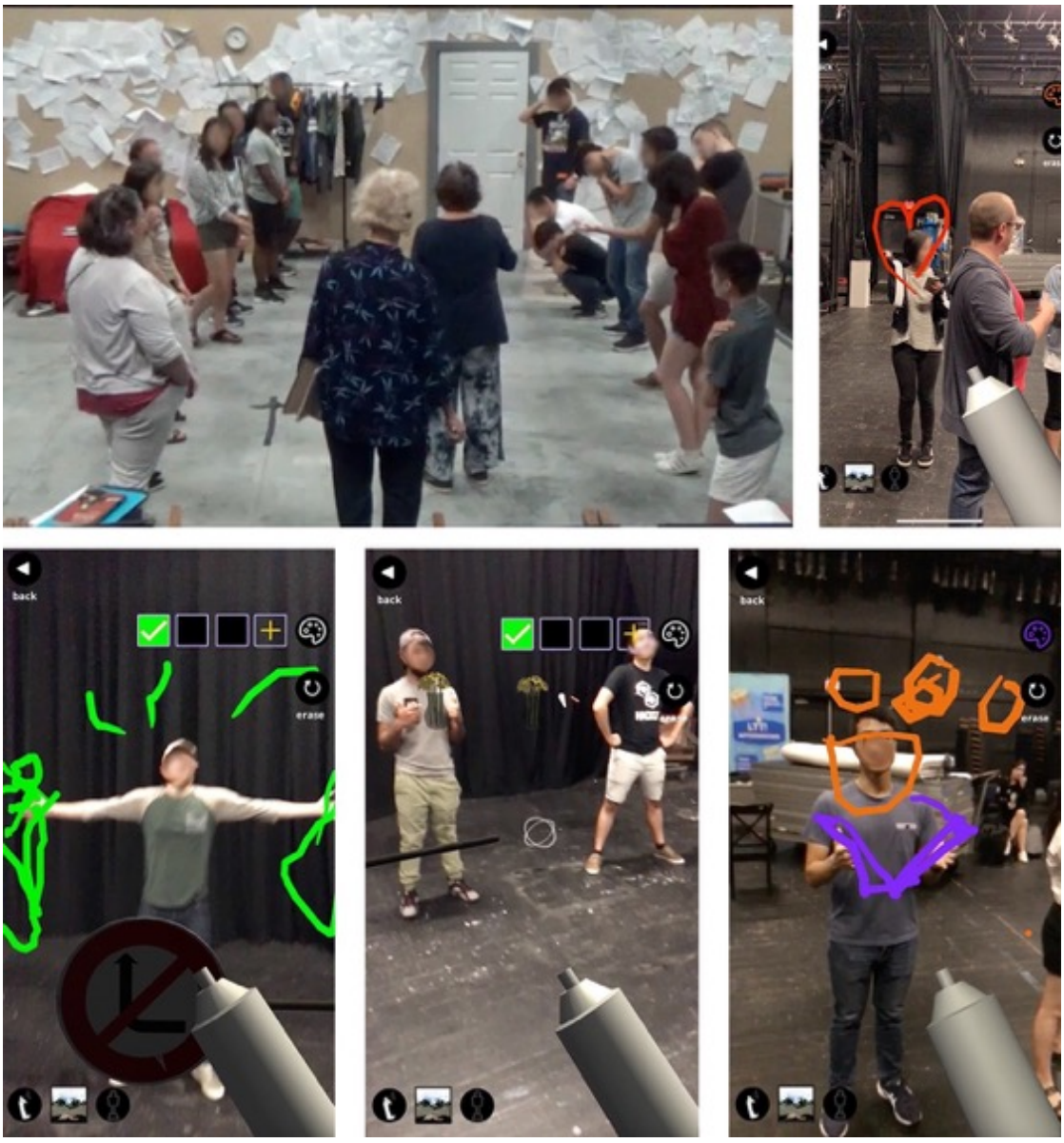

Figure 38 Gallery of Images. The first image in the upper-left-hand side shows Sheila Kerrigan and Dr. Kilkelly running the non-AR version. Every other image displays the AR version.

The last significant activity was Image Theater in Figure 39. Students were split up into groups of three and four. As a group, they chose an IFSW card to turn into a representation of reality. One student sculpts the others into a scene that is identifiable with the story on the card. The students take turns, one after the other, moving that image to the

most ideal and identifiable representation. At this point, Sheila Kerrigan and Dr. Kilkelly handed out dialogue cards and prompts to the student. Starting one at a time, the students would begin repeating one of the phrases on the card from their point of view. It was a way of taking an internal monologue and externalizing it for others. The cards provided the following prompts:

- "I want…. or I must… or I need…
- "I fear… or I don't want…
- "I think…
- "I feel…

After students repeated these phrases out loud, filling them in with diegetic dialog contextual to their scene, they were asked to improvise. They were to stop repeating the same phrases and move into a story.

Figure 39 Image Theater: The top three images show the non-AR version. The other images show example AR scenes constructed by the students in the INFW workshop.

At this point, Sheila Kerrigan and Dr. Kilkelly brought other groups around to view and reflect upon the scenes the students constructed. They would ask students the following questions:

- What are you seeing?
- Where is the oppression?
- Where is the safety; where is the danger?
- Who is oppressed? Who is oppressing?
- Who is the witness?
- Is it realistic? What is real or false?

When every group had a chance to reflect and answer the questions, the workshop came to a close. Students sat with Sheila Kerrigan and Dr. Kilkelly to discuss the workshop exercises, helping students reflect and think critically about what they experienced.

In the INFW, this procedure was followed in the same way. Students were able to use the OR app to add MR to their representations. Additionally, two or three students could be adding AR elements simultaneously. At any one time in the INFW, there was always at least one student being sculpted. The final reflection was done through the survey tools and interviews.

5.4 Connecting the Workshop, App, Identification, and Storytelling

This chapter has discussed the design and development of both the OR app and an INFW. Using the Rhetorical Affordances Framework I developed, media affordances were linked to interface interactions and performance activities to demonstrate how they can create knowledge and motivate action. Both human and mediated affordances are part of this process.

In Table 20, the initial warm-up and documentary activity takes place through the IFSW card distribution and discussion. The only physical affordance is the physical cards. Users interact with one another through purely physical means (including speaking with one another), and these actions are physically corporeal. The event is passive-adaptive because users may not be aware of how the conversation related to the cards may be influencing their perspective.

Further, the kind of interaction is expansive as users are engaging with and collating a wide range of material. None of the strong concepts are in use because this is a purely physical experience. The embedded values are identifiable in the handwritten documents, the institutional backing of the IFSW campaign by the university, engaging with the artist and the practice, and through writing their own cards, they embedded their own values in the process. These physical aspects are taken together, afforded by the physicality, materiality, and socio-cultural aspects of the material, to make the experience identifiable. There were no digital affordances used in this experience.

Table 20 Rhetorical Affordances in the Initial IFSW Discussion

Affordances for Identification		**The Gaze**		**Documentary Voice**	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
Physical cards Handwritten documents from the community	N/A	Physical corporeal Physical interaction	Shared Reflexive	Passive-adaptive Expansive	Institutional backing of the IFSW campaign Meeting the artist who ran the campaign Filling out their own IFSW card

In Table 21, sociometry is shown to rely on physical and digital affordances. While the user movement takes place in a physical space, it is marked in a virtual one. This

particular interaction is active-adaptive because the experience changes based on the user's movement and the color paint they have chosen. The activity involves the construction of an environment and so is immersive. It utilizes strong concepts to vivify the mixed reality and make it identifiable in the physical space. In this instance, the embodied movement of the user (when connected to its representative 3D paint stroke) strengthens the impression of the AR. Digital aspects are used to create an identifiable scene. For example, the digital-shared-feminist gaze, in which every participant creates with one another and sees the same co-constructed scene via the device. Computer vision supports this gaze, as well as feature detection, GPS and localization, and the phone's position in space. The accelerometer and haptic feedback support the actual drawing.

Table 21 Rhetorical Affordances in Sociometry

Affordances for Identification		**The Gaze**		**Documentary Voice**	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
Participatory co-creation of the scene Physical IFSW cards IFSW cards Embodied movement	Computer vision Feature detection GPS and localization data The phone's position in space Accelerometer feedback Screen interaction with haptic feedback	Physical corporeal Physical interaction Virtual corporeal Virtual interaction	Shared	Passive-adaptive Expansive	Real time mapping Optical Scenography Location awareness Generative exploration Fingertip rays

	Spatial inscription Access to virtual space				

In Table 22, sociometry is shown to rely on physical and digital affordances. While the user movement takes place in a physical space, it is marked in a virtual one. This particular interaction is active-adaptive because the experience changes based on the user's movement and the color paint they have chosen. The activity involves the construction of an environment and so is immersive. It utilizes strong concepts to vivify the XR representation of reality and make it identifiable in the physical space. In this instance, the embodied movement of the user (when connected to its representative 3D paint stroke) strengthens the impression of the AR. Some digital aspects come together to make a truth claim or scene identifiable. For example, the digital-shared-feminist gaze, in which every participant creates with one another and sees the same co-constructed scene via the device. Computer vision supports this gaze, as well as feature detection, GPS and localization, and the phone's position in space. The accelerometer and haptic feedback supports the actual drawing.

Table 22 Rhetorical Affordances in Gallery of Images

Affordances for Identification		**The Gaze**		**Documentary Voice**	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
Participatory co-creation of the scene Physical IFSW cards Physical space	Computer vision Feature detection GPS and localization data	Physical corporeal (For the sculpture) Physical interaction (For the sculpture)	Shared	Passive-adaptive (For the sculpture) Active-adaptive (For the sculptor) Immersive	Optical Scenography Location awareness Fingertip rays

The use of a peer's physical body Embodied movement	The phone's position in space Accelerometer feedback Screen interaction with haptic feedback Spatial inscription Access to virtual space Ambient light detection Animations	Virtual corporeal (For the sculptor) Virtual interaction (For the sculptor)			Static and dynamic gestures

In Table 23, Gallery of Images, a number of the same aspects come together to create an identifiable experience. One key difference is the use of another person's body as part of the XR representation of reality. For the person who is having the AR applied to them, the experience is purely physical. The sculptor, on the other hand, is acting primarily in virtual space and so their scene has a virtual corporeal element. This embodiment follows through into the kind of interaction as well. For the sculpted person, the sculpture, the experience is passive-adaptive—they do not know how their body shape and movement is affecting the scene. For the sculptor, the use of their partner's physical body during the exercise makes the scene identifiable

Table 23 Rhetorical Affordances in Image Theater

Affordances for Identification		The Gaze		Documentary Voice	
Physical Affordances	**Media Affordances**	**Live or Mediated**	**Direction**	**Modes of Engagement**	**Techniques for Engagement**
Physical IFSW cards IFSW cards Physical space The use of a peer's physical body Embodied movement Physical objects in the space	Computer vision Feature detection GPS and localization data The phone's position in space Accelerometer feedback Screen interaction with haptic feedback Spatial inscription Access to virtual space Ambient light detection Animations Dialogue prompts Giving voice to personal testimonials	Physical corporeal (for the sculpture) Physical interaction (for the sculpture) Virtual corporeal (for the sculptors) Virtual interaction (for the sculptors)	Shared Reflexive	Passive-adaptive (For the sculpture) Active-adaptive (For the sculptors) Immersive	Real time mapping Optical Scenography Location awareness Fingertip rays Static and dynamic gestures

In table 23, Image Theater, has a number of the aspects create an identifiable experience. The differences here are related to roleplaying in the scene, giving voice to the testimonials and the use of dialog prompts. Both of these practices, borrowed from Boal, are meant to give an authentic voice to these scenes. They are physical aspects of the workshop exercise are rhetorically used as evidence in parallel with the digital representation.

I believe that the physical and digital affordances, their placement within reality or virtuality, has an impact on how identifiable a story appears to those in the workshop. Further, how interactions are exercised, whether passive or active-adaptive and immersive or expansive, can also impact how the representation of reality appears. Neither purely digital nor physical aspects result in an identifiable scene. It is the mixture of both, within a particular socio-cultural environment, that results in representations of reality that create knowledge and motivate social action

CHAPTER 6. EVALUATING APP AND WORKSHOP

Achieving identification between workshop participants that results in social action is a goal of INF. A long history of practitioners from Dziga Vertov (film) to Gabo Arora (VR) have relied upon the rhetorical affordances of emerging media in the construction of an identifiable representation of reality. The Our Reality (OR) app in the Interactive Non-fiction Workshop (INFW) relies on participatory and dialogic tactics to encourage the co-creation of an event's representation through media affordances. What results is a representation of reality that is meant to create knowledge that participants may identify. The INFW and OR app work in the tradition of Paulo Freire, Augusto Boal, and Jacob Moreno. The workshop's structure is in Figure 40. This is a tradition focused on and around NF material that moves from mediated to physical domains to achieve identification between participants. The OR app's use of reality media, with its access to virtual and physical domains as evidence, is utilized as part of this process.

How participants utilize documentary material while co-creating with one another impacts the process of identification. Interactions with the mobile app, its procedural rhetoric, and the affordances of reality media shape this process. As the documentary form has evolved to take advantage of digital affordances, participants have begun to create and impact the documentary experience through interactions. This framing positions participants as situated within the INF experience, influencing it as they progress through

it. Subsequently, this reframes the documentary voice[68]as authorship as the voice as participation. Through this participation, participants co-create their representation of an event. This dialog on reality occurs through a series of interaction design paradigms afforded through an application's interface that extends the intentions of users and alters their creation of the documentary content. Consequentially, this impacts how well their peers will identify with what they create.

[68] Voice is a term commonly used in documentary studies to describe the combination of gaze and embedded values. The voice is each participants' perspective conveyed as part of an argument on the screen [170]

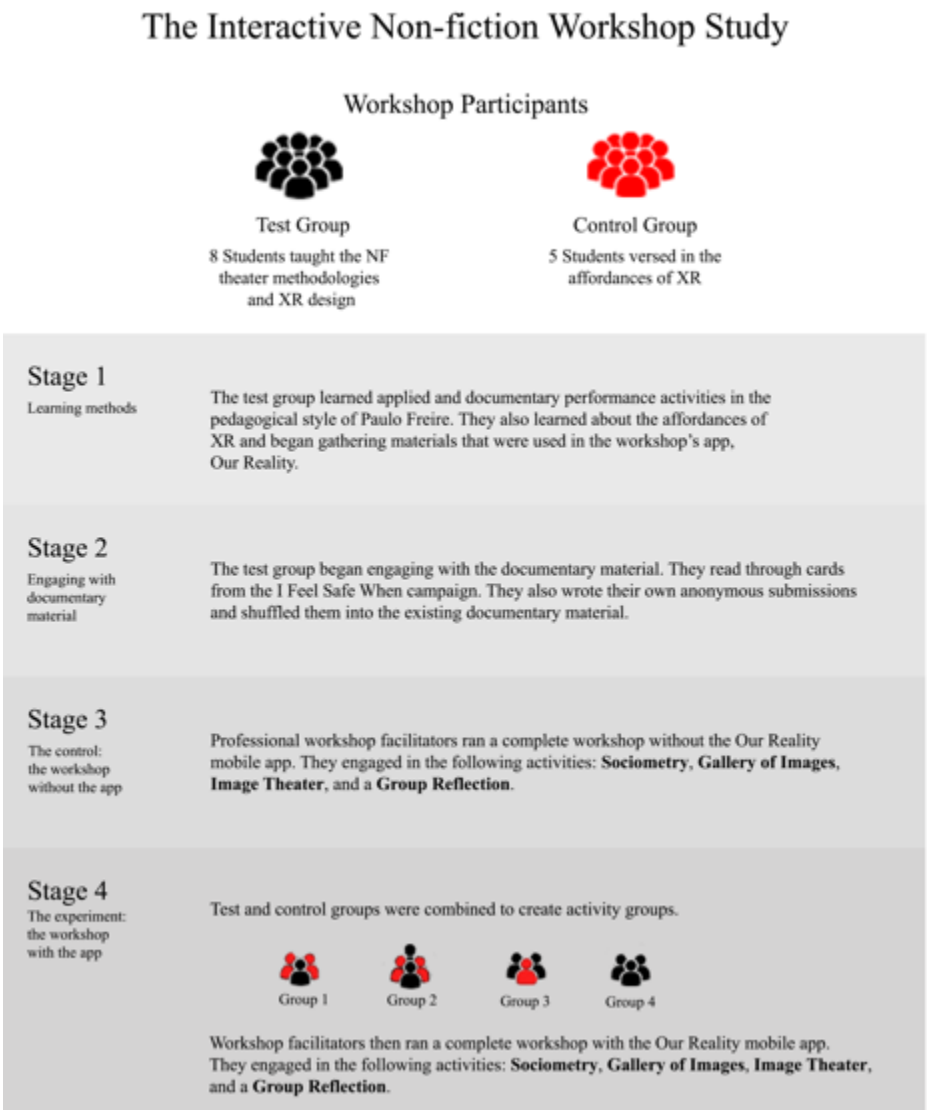

Figure 40 The experimental design of the Interactive Non-fiction Workshop

An INF app's interface is designed to afford these expressions of documentary material. First, the method of participation, whether it is meant to be immersive (create an environment that encompasses the participant) or expansive (the collection and utilization of a variety of different material). Next, the form of participation, whether the user actively or passively adapts the material, impacts their perception of the identifiability of the

material. Lastly, the strong concept (an interaction paradigm that combines media affordances with a specific application) enables the expression of the documentary material through hardware affordances. The affordances available for a voice as participation, how participants express themselves, is hypothesized to impact the how well others will identify with the co-constructed perspective, the mediated actuality. Further, I have put forward that the interaction paradigm used as part of the voice as participation is rhetorical in a co-creation setting. The sum of the users' interactions is a rhetorical text of how they perceive the NF material and what kind of knowledge they create. These factors are in Table 24 below.

Table 24 Rhetorical Affordances Framework and Workshop Practice

The Workshop Practice	Domain Affordance	Voice as Participation	Digital-Shared-Feminist Gaze
Any of the workshop activities	Virtual or physical embodiment and/ or interaction	Method, form, strong concept, and expression	Co-creation through a gaze, with embedded values and situated knowledge

The following research questions were proposed to generate support for this framework. Questionnaires and survey tools were designed to provide answers that elucidate how emerging media impact this process and how users create an identifiable representation of reality.

- How did participants utilize the practice and the mobile app to come to an agreed upon AR representation of the documentary material?
- What made a participant's AR representation of the documentary material identifiable to others in the group?

- How did AR contribute to the identification to create knowledge about the constructed scene?
- Why were the AR and Interactive Non-fiction workshops considered a compelling experience for motivating social action (consubstantial)?

6.1 Evaluating the Rhetorical Affordances of Reality Media

Given the experimental nature of these workshops and their confluence of variables, an evaluative process of naturalistic inquiry was chosen. This mixed methods approach utilizes both quantitative and qualitative information. Semi-structured interviews, surveys, and video recordings make up the qualitative information gathered. The interviews were completed within 24 hours of the final workshop and lasted on average 15 minutes. Short answer surveys were taken immediately after the final workshop experience. All of the material was coded using grounded theory on the Dedoose qualitative data dashboard. For quantitative tools, a usability test and Likert-scale surveys about the experience were utilized. The quantitative information was connected with participant ids in Dedoose to verify findings.

By the end of the workshop, there were 13 participants in the study. Eight of the participants were the expert undergraduate students who had been through training. The other five were novice undergraduate students. For the evaluation, the participants were separated into four different groups for the final exercise, Image Theater, which involved the most co-creation and NF storytelling. This particular exercise involved participants reviewing the IFSW documentary material, a minimum of two participants using phones to create the story, and negotiating an identifiable representation of the material in AR. In

Table 25, the distribution of novices and experts in the groups is shown. A usability test was developed to validate the training the experts received and to assess how well all users were able to use the application.

Table 25 Breakdown of Novice and Expert Users in Groups

Group	Group 1	Group 2	Group 3	Group 4
Novices	2	2	1	0
Experts	1	2	2	3

6.2 Quantitative Evaluation

The quantitative aspect of this study involved a usability test and a Likert-scale survey about the XR scenes created in the workshop. The usability test was crucial for evaluating how well users could successfully create their representation of the documentary material. What they produce may or may not successfully reflect the non-fiction material from their perspective. If the OR app impeded their ability to express themselves then their documentary voice was stifled[69]. Before the study, I hypothesized that a higher usability score would correlate to the successful expression of a representation that, to the participant, would be considered reflective of documentary material.

[69] Bugs in the experience that might interrupt a user are a malformed procedural rhetoric that have a negative impact on the INF storytelling.

This capacity to express an idea relates to how well the user can use the app to create the scene that they have in their imagination. Whereas reflection relates to how accurately the produced representations align with the non-fiction material. By way of example, I can draw a picture of a tree capably enough, but it may not accurately reflect how any natural tree actually looks. In other words, I can express the visual of a tree through drawing, but it may not accurately represent a tree. Another example, a photographer may take hundreds of photos until they find one that, from their perspective, accurately expresses what they feel the scene reflects. In the workshops, a variety of factors may act against or support how reflective the documentary material may appear to a participant. These might be technical issues or ambiguity in the cards' stories themselves that alter expression. Additionally, the negotiations that occur between participants as they co-create their representation might result in one participant feeling like it is more reflective than another.

6.2.1 *The Usability Test*

The usability test was made up of six different tasks that participants were asked to carry out through the mobile app. These are in Table 26. Each task evaluated their use of a specific interaction paradigm for the documentary voice as participation. Participants were asked to rate how easy the task was and how confidently they completed it. Both options were ranked from strongly agree (2) to strongly disagree (-2). A participant that was an expert in using the app would score around 24 points. Someone who was unable to use the app and had a bad user experience could score -24 points. In Table 27, the general, novice, and expert usability averages are listed.

Table 26 Usability tasks to assess the Our Reality app

Task Number	Task
1	Please enter a performance space through the lobby in the application and draw a balloon.
2	Please choose a partner and draw a tree with their help.
3	Please place a shape in the scene and give it a texture and change its color.
4	Create a small scene using 3D objects. Invite a partner into your AR to change the position of the objects.
5	Choose a human 3D object and select an animation.
6	Place a portal in space. Walk through it.

6.2.1.1 Usability Study Results

Results indicated that the mobile app was slightly difficult to use. While experts did have more participants with higher usability scores, some expert participants scored just as poorly as novices. This became clear in interviews when users brought up technical difficulties with placing objects in 3D space. All participants had difficulty with Task 3, which was placing an object in space and then changing its color and texture. Participants were split in half when it came to completing Task 4, which involved creating a small living room scene in AR.

Table 27 Breakdown of Novice and Expert Usability

Participants	Average Usability Score
General	14
Novices (Control Group)	13
Experts (Trained Students)	15

A few things become clear when looking at how this translated into the successful representation of reality in XR. In general, high usability scores appeared to correlate with strong expressions of documentary material[70]. This carried for the expert students, who had higher scores when it came to successfully producing their representation in XR.

A successful creative expression did not necessarily result in a scene that the participant felt was identifiable though. In general, participants who scored poorly in usability believed that the scene was more identifiable than their peers. These participants were most often novices. However, participants with high usability scores utilized more of the physical and cultural environment in their AR scenes. These participants thought their scenes were more reflective of the physical environment, the workshop space (A black box theater), and the campus culture.

[70]. These factors will be discussed in the section on the Likert-scale surveys.

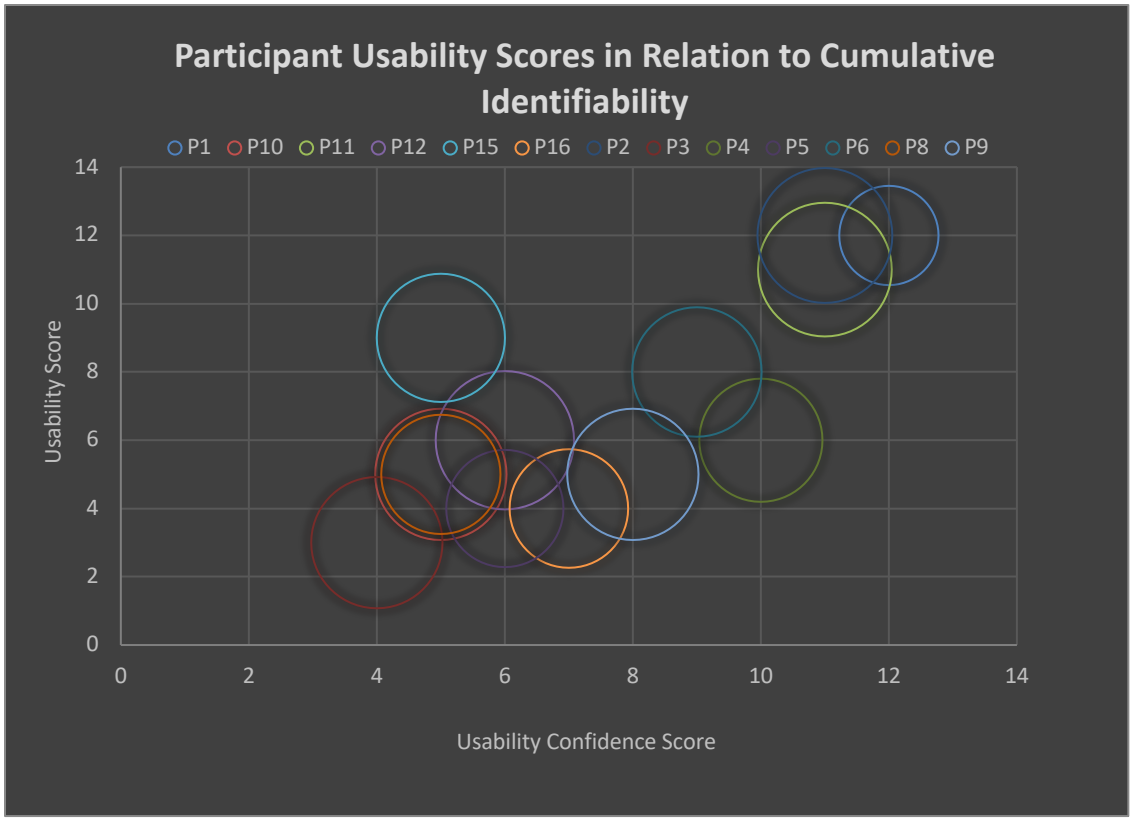

Figure 41 Participant usability scores in relation to cumulative identifiability. The size of the circles relates to the participant's cumulative identifiability score.

6.2.1.2 Usability Results Discussion

The following preliminary conclusions can be drawn from the usability study to inform the inquiry. Looking at Figure 41, it appears that usability did not necessarily correlate with a greater belief that the XR scene was identifiable with the documentary material, but it did positively impact the production of representations of reality. Novices believed that the scenes they created were reflective of the material but had trouble creating their representations of reality. Experts did not believe they were reflective enough. This could be due to group dynamics and expectations. Take the case of Group 4, all expert

participants who had high expressive scores. They felt like they were able to draw a scene successfully but that the IFSW card was too ambiguous to afford an accurate representation. The lack of specificity in the card made an identifiable representation hard to achieve. Such feelings were common among the experts who, in interviews, were more likely to mention that the lack of detail in the IFSW material diminished their ability to achieve an identifiable representation.

The confidence of novices may be a result of the Dunning-Kruger effect [164]. From the field of psychology, the effect is a cognitive bias in which people with low ability perceive themselves as having a greater understanding or ability than they actually do. This lack of awareness makes it difficult for low-ability people to assess information objectively. It is possible that novices, new to both the technology and the documentary material, were overconfident in their assessment of their XR representation as being identifiable. However, it is worth noting that perceiving the representation of reality as reflective is personal and subjective. The categories of novice and expert might not adequately reflect this.

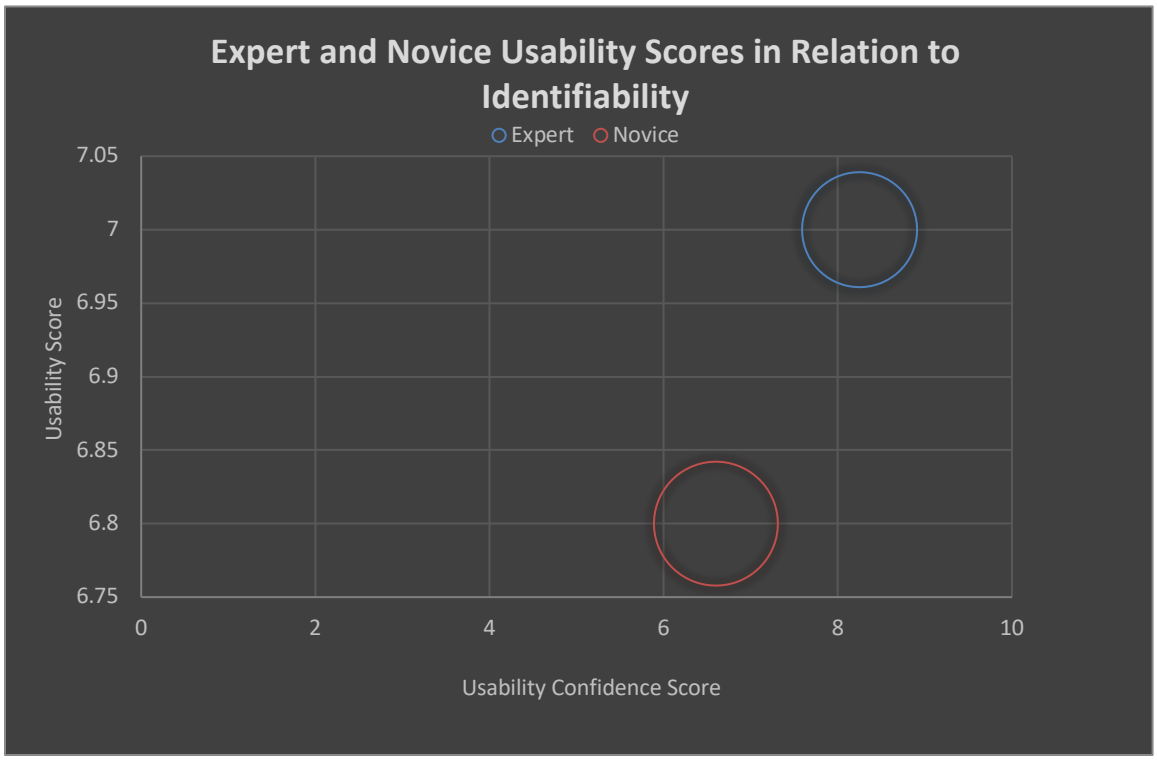

Figure 42 Expert and novice usability scores in relation to identifiability. Expert (94) vs. novice (109).

In Figure 42, usability can be seen to affect how participants viewed the capacity of these XR representations to motivate social action. Generally, participants with higher usability scores believed that their fellow peers would identify with their representation of reality. Further, these participants also believed that those in the greater campus would believe the XR scene was identifiable with the documentary material. The combination of these two implies that users with higher usability scores viewed their stories as identifiable. This is confirmed by the Likert-scale surveys as well.

6.2.2 *The Likert-Scale Survey to Evaluate the Experience*

My goal for these surveys was to evaluate how the co-occurring aspects of the workshop may produce a representation that is identifiable. These aspects were recognized as three contributing factors—scene domain, expression, and reflective representation. Examples of these questions are in the Appendix. However, an explanation of each is in Table 28. Each factor was evaluated with seven questions, except for reflective representation, which had eight. Each question was evaluated on a seven-point scale. The highest possible score was 156, and it would imply a story that was completely identifiable in the eyes of the participant. The average score was 110/156 which indicates that participants were able to create generally identifiable representations of reality.

Table 28 Breakdown of Novice and Expert Users in Groups

Aspect of the Rhetorical Affordances Framework	Factor Tested through Likert-scale Survey	Explanation
Affordances for Identification	Scene Domain	Whether or not objects or scenes existed in physical or virtual reality and where interactions took place
The Gaze	Reflective Representation	Whether the representation was reflective of the NF material and participant's embedded values
Documentary Voice	Expression	How well the participant was able to create a representation of the documentary material

The surveys were based on an AR-presence survey [165] and Witmer and Singer's presence survey [166]. These surveys were chosen because AR and VR documentarians contend that their stories are reflections of lived reality [167, 19]. Our presence within these representations of reality impact how identifiable their stories are. The modifications made to the survey decreased the tool's alpha, indicating less consistency (.64α vs .88α) in the data but a reduced standard deviation (12.216SD vs. 15.78SD). This is due, in part, to the small sample size. According to statistical analysis, questions factored into reflective representation showed the most significant statistical reliability. Moreover, while these numbers are not statistically significant, they do show a positive indication for the utility of this quantitative framework to evaluate future workshops.

6.2.2.1 Likert-scale Survey Results

Before going into greater detail, the highest score was from an expert user and was 127/ 156. Given the framework, this would imply a strong belief in the identifiability of the XR representation of reality. The lowest, 88, was also scored by an expert user. This would indicate that they did not believe that their XR representation could capably create knowledge. The average score was 110/156, which would correlate to potentially identifiable (70%) and capable of creating knowledge. Comments in the interviews back up these assertions.

Many insights were derived from the Likert-scale surveys. First and foremost, none of the individual factors were more influential than the others. Scores above 33 in any two of the domains resulted in high cumulative identifiability scores. In general, if a user was

able to express their idea well (>39/ 49), perceived that the scene existed partially in reality (>32/49), and believed that it was representative (>38/56), they would perceive the representation of reality as identifiable (>109/ 156) enough to create knowledge. Seven of the thirteen participants fit this profile. This data is shown in figure 23.

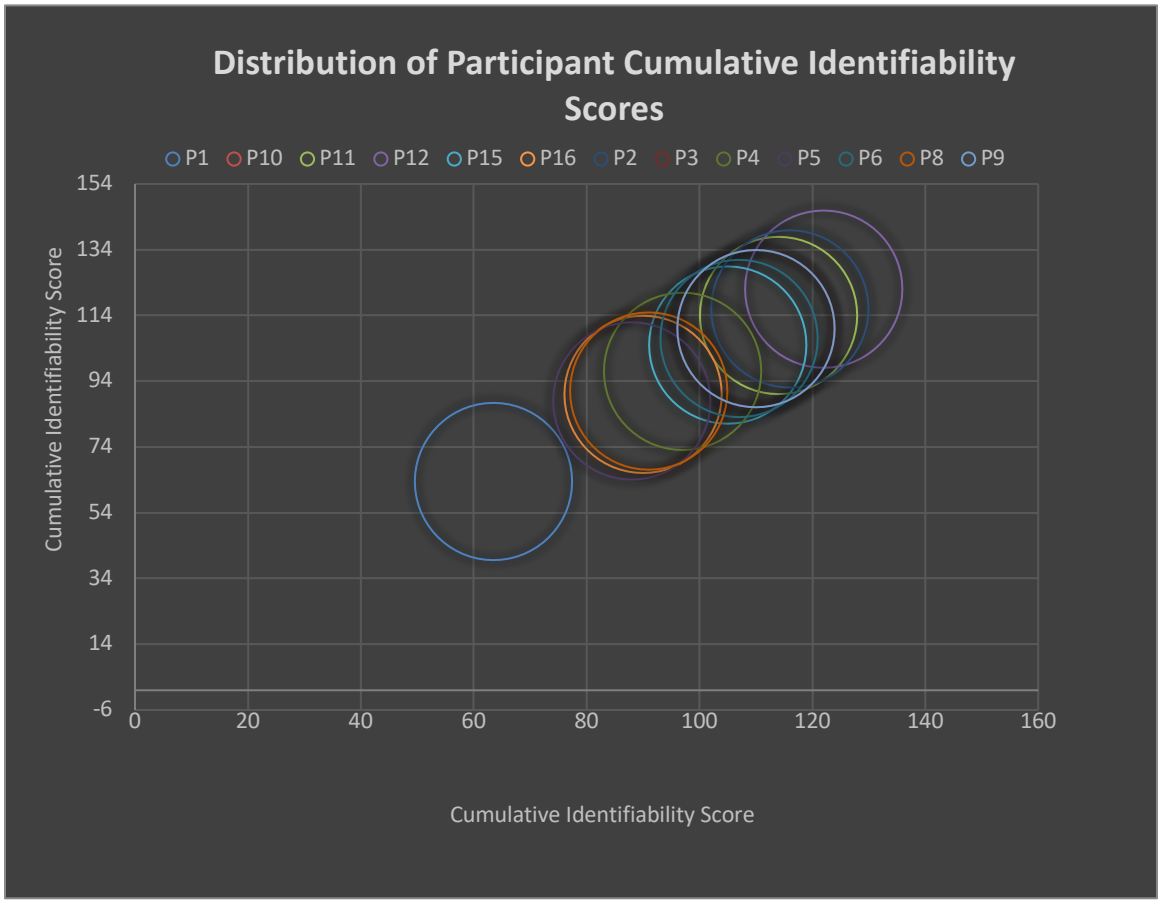

Figure 43 Distribution of Participant Cumulative Identifiability Scores

Results shown in Figure 44 confirmed the assertion made by XR storytellers that their experiences may be able to encourage social action through the affordance of their liminal embodiment between the physical and virtual. Representation and scene domain scores above 36 were indeed correlated with participants believing their story to be

identifiable both within the group and with the external community. Such shared belief was hypothesized by me as necessary for social action. Further, answering Q5 and Q21[71], with scores above 5/7 and 3.5/7, correlated with perceiving them as identifiable. This was also true for questions related to the efficacy of social change through the workshops. Those with high scores (>8.5/14) showed a stronger belief in the identifiability of their representations of reality.

[71] These two questions that asked users to rank how representative their story would appear to those within the group and community.

Question 5: How representative of the original event will the scene seem to those in your group?

Question 21: How representative of an actual event will the scene seem to those outside of this workshop?

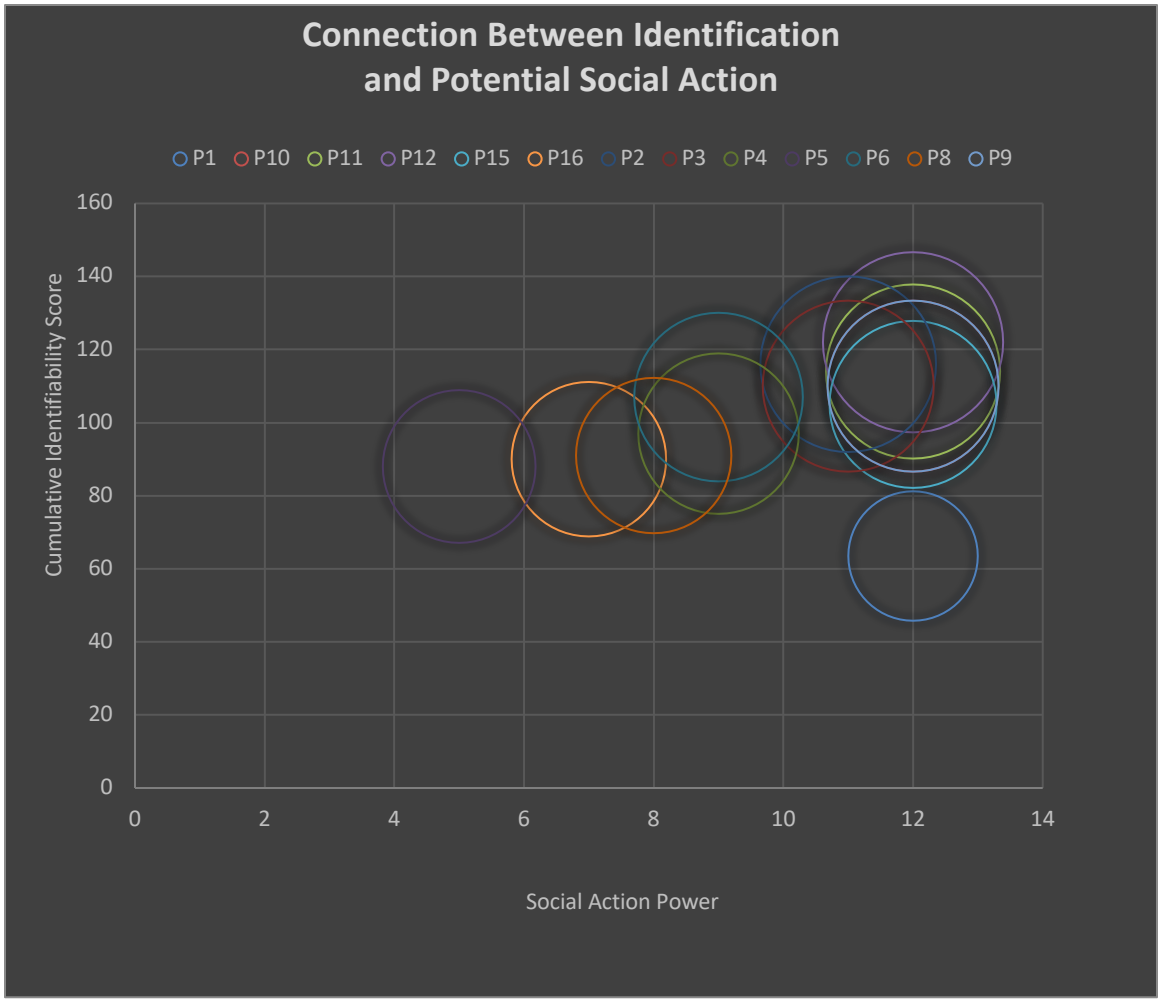

Figure 44 Connection between cumulative identification score and the potential for social action.

6.3 Qualitative Evaluation

While the quantitative data sketch a positive experience, the qualitative data clarify how XR changed the construction of identifiable representations of reality. As mentioned at the beginning of this chapter, grounded theory and content analysis were utilized on the survey answers and interview transcripts. The process resulted in 50 codes representing 475

excerpts[72]. The frequency of co-occurrence for these codes was evaluated against the quantitative data: usability scores, cumulative identifiability scores, and its three factors[73]. To gain clarity, qualitative data were analyzed at the level of the individual participants, image theater groups, and by usability scores[74]. As discussed, a multitude of factors combine for a representation to become identifiable: design affordances in both the physical and digital domains, a mediated gaze for embedding values, and the use of a documentary voice.

6.3.1 *Codes Related to the Available Design Affordances for Identification*

The design affordances for identification occur in both the physical and virtual domains. Participants created their representations of reality in a black box theater. There were only a few wood blocks, two tables, and some chairs. The rest of the workshop space was open. One of the rhetorical affordances of XR is its capacity to use both the physical and digital as evidence. The sum of details gleaned from these sources become a realist enargia. Each detail derived from the lives of the participants and the IFSW material substantiates their representation of reality.

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[72] A full list of these codes, with excerpts, can be found in the Appendix. A table of code co-occurrence is also included.

[73] The data was not organized by experts and novices because it was based on code frequency and experts account for the majority of the participants. This would have skewed data by consistently showing larger code frequencies for the experts.

[74] Good usability, being a score above 16; median usability, being a score above 8; and poor usability being score below 8. There were more good and median users than bad users when ranked this way.

6.3.1.1 The Use of the Physical Environment

The codes below relate to how workshop participants utilized the physical environment through XR to make their scenes identifiable to their peers. These excerpts are representative of participants who actively engaged the physical environment as evidence to express the meaning of the documentary material. Two of the groups utilized tables and chairs as part of their XR scenes. In both instances, the IFSW card mentioned sitting and talking or dining with friends. The participants in these groups were also more likely to believe that their XR representation of reality was situated in the physical domain.

- *My group found a space that had a chair and tables. So, we could […] incorporate actual physical people into the space, we were able to use those chairs and use the table as well as add AR entities into that space to actually fully create a scene that we wanted to have. – P16*
- *Making an AR object interact with a real object -P8*
- *When they matched the color, lighting, mood of the room, etc. – P6*
- *As I said, I tend to create a more realistic, a more literal scene because the props are so high fidelity, and so I tend to create a scene that exists in the real world. – P12*

6.3.1.2 The use of Digital Material

The following codes relate to how XR's affordances were used to create the representation of reality. These 3D objects and scenes were co-created by the participants using their chosen set of models, 360 environments, textures, and spatial sketches.

- *By using props or drawing, we were able to visualize what the IFSW card said – P5*
- *We utilized AR to reflect the emotions and feelings of the participants' writing (IFSW) – P3*
- *So, it required more thought because we had to think about what actually makes up the message on the 'I feel safe when' card. Like, how can I group these into different categories and then from those categories, what objects go into that category and how can I place them into the AR environment, so that they're telling the story of the person who wrote the card or the person reviewing the reality, to convey the message – P9*
- *I think like augmented reality gave you the visual representation of everyone's choices but fit in the physical world. You can say 'Hey, like this person is choosing the same choices as I am. They might have the same interests as me'. So, you kind of notice it in both worlds. – P2*
- *It definitely improved the creative process because if you can imagine it and I guess kind of draw it, you can portray your ideas in AR; and AR has a whole bunch of tools, it doesn't have to be drawing. – P11*

The creation of representations across domains has a rhetorical effect in two ways. First, it allowed participants to construct a detailed representation of reality (realist enargia) from physical and digital material. Second, when participants looked away from their phone at the empty physical space and then back at their situated representation there was a different rhetorical effect—the rhetoric of auratic presence. To participants, their representations felt and "alive" or "full." The absence of them was felt by users when they looked away. This is rhetoric of auratic presence and it elevates the representation of reality above the event or place in physical reality.

- *When I was like looking through the screen of the phone and putting some objects and drawing for like quite a long time […] and when I viewed the reality outside of my phone I kind of became surprised. You know we put so many objects in that screen and I was just watching the screen for a long time and then when I just looked at the reality it was different and then I kind of felt that emptiness, you know. – P10*
- *When I looked through the phone it actually felt really like one of the biggest emotions I've felt. Like, oh—there's a lot of things going on here and then when I kind of looked away from it and then looked back I felt […] all of the stuff going on actually looked like it belonged in the real world. -P1*
- *It seemed relatable but at the same time distant. – P6*
- *When I got the phone and then looked into the scene it felt like reality was more alive – P1*
- *After looking at the app, suddenly going back to reality looked really lonely – P1*

6.3.2 *Codes Related to the Mediated Gaze*

The second aspect of the RAF was the use of a gaze to embed values. The gaze is afforded by the optics of the device. The instrumentality of the gaze enables gazers to frame their subject in a context of their choosing. This is a political, rhetorical, and didactic process. In the workshops, a digital-shared-feminist gaze was afforded through the Our Reality app. This digital-shared-feminist gaze was meant to enable users to see a shared representation of reality, to co-create that representation, and to use their own situated knowledge as part of the process. The below codes are related to using the digital-shared-feminist gaze to embed values.

- *You got maybe some, you know, creative choices that were strictly your own, but then other people can see them as well. – P6*
- *I really like the concept of working together in the same augmented space, being able to see what other people have created as long as they each got a phone of their own with the app installed. I think like definitely the real-time collaboration editing is something that I think a lot of people will enjoy using […] I think like that adds a lot to the creative experience. – P2*

To further investigate the impacts of the digital-shared-feminist gaze and what a lack of access to it might mean, some participants did not have access to the XR in some of the workshop activities. Participants were split, roughly by gender, in how they felt about being the subject of the gaze. Being cut off from the gaze was an obstacle to identification as it

hindered a participant's participation in the digital domain. Participants without access to the gaze could not negotiate the embedded values with their peers in the same way.

- *I was the first model at the beginning and everyone (other participants) were trying to put people in and put some food in front of me. I myself felt nothing. Like, I felt really alone. – P1*
- *I felt vulnerable. They were doing something to me, but I couldn't tell what – P6*
- *It felt really weird. I really felt like I was in a different place but at the same time I'm still in the same place because it's literally the same place, but I don't know it feels really—really weird after I did everything. – P5*
- *I felt like a model sitting on a table waiting for the painter to finish their masterpiece – P2*
- *Kind of just being vulnerable. I guess, just like you know someone could do whatever they wanted, you know. I didn't expect that to be happening but…you know, if it was some random person that I had never interacted with before, they could just be making fun of me or something like that — not that I expected that; it's just like that's something that could happen because you can't see what's going on. I think that's just like the natural apprehension and the anxiety that we feel as human beings. – P6*

The final statement from P6 highlights the general mood in response to being the subject of the digital-shared-feminist gaze. Most participants felt safe and either weird or bored during these moments because they trusted their peers. However, outside of this situation,

in a scenario where trust was not built, that there would be a considerable amount of anxiety in these moments. While such insight is not surprising, it does continue to serve as a caution to XR developers and designers from utilizing real bodies (not the user's own) as part of their experiences.

6.3.2.1 Codes Related to Embedding Values

Through the digital-shared-feminist gaze, it was expected that participants would work together to embed shared values into their XR representations. Some participants expressed embedding values from an individual stance, and others explicitly discussed the process with their peers. The following examples were included in the embedded values category.

- *We all brainstormed and pitched ideas before coming to a decision – P15*
- *When we were working together with other people, like their ideas kind of—you can get an idea based off of what they're doing, like how to interpret the message – P9*
- *I put myself in the situation and then drew the scenario – P4*

6.3.3 *Codes Related to the Documentary Voice*

The final set of factors in the RAF is the documentary voice. The documentary voice is how practitioners structure their argument through their representation of reality. In the workshop, participants used interactions with media affordances situated within performance activities to create their representations. Accordingly, these sets of codes are expansive and covered a range of interactions and media affordances.

The following codes cover the kind of interaction whether it was immersive or expansive, and active or passive-adaptive. They also cover the strong concepts, which included interaction patterns such as optical scenography and fingertip rays. The others set of codes exemplify immersive and expansive interactions; respectively whether an interaction was meant to increase the immersive quality of the scene or to collect more data or information.

6.3.3.1 Expansive Interactions

All of the expansive codes relate to gathering knowledge and input regarding what objects to place in the scene. The interactions focus on this collection of information and the expression of it through the mobile app. In P11's statement, to illustrate, they rely on the drawing tool due to their discussions and expansive interactions. There were no models of food in the app. So, after the expansive interaction of searching through models, P11 relied upon the drawing tool.

- *Our group carefully chose the right set of props, characters, and so on. – P3*
- *We selected the "materials" we had that made the person feel safe – P5*
- *We were debating between what kind of meals to portray. We chose the practical ones that we could draw like apples, pizza, and cake – P11*

6.3.3.2 Immersive Interactions

Note that these interactions rely on placing objects or drawings into reality to create the scene itself. The intention behind these interactions involves filling the scene with objects to express the documentary material. The majority of the participants believed that their

immersive interactions created a scene around the participant being sculpted. The excerpts from P5 and P9 speak to this assertion. Participants generally felt like they could not directly interact with the AR objects in the scene, but that there was an XR world around them that encompassed them.

- *I knew that there was like stuff around me in reality. So, they (peers) would see that I would look like I'm actually talking to the other people that they put there. – P5*
- *I think for the most part, the person that we were sculpting, we just drew around them to like encompass them in the actual AR rather than really making them interact with it. – P9*
- *Like in augmented reality, I feel like it's more literal, like I can literally put augmented people around the real person, and it's very easy to identify once you have a phone and can point to where's the thing is. And yeah, I think it makes me construct a scene that's more literal rather than abstract in augmented reality – P12*
- *I thought I was like living in the app. – P5*

6.3.3.3 Passive-adaptive Interactions

The next set of interactions discuss how each is executed and perceived by the participants. The first code set, passive-adaptive, relate to interactions that a user is not consciously aware that they are making that change the scene. Most commonly, these kinds of interactions are related to passive data collection, such as locative experiences wherein the user's movement triggers content at particular coordinates. Such interactions were rare

in the workshops, but they did exist. The majority of the codes for passive-adaptive interactions correlate with codes related to being the subject of the digital-shared-feminist gaze. In these moments, the user was only aware that there was an AR scene around them and had only the slightest idea of how they were involved or changing it.

- *Oh more curious, more curious about what was going on around me. Just wondering what was being created. – P11*
- *That was one of the things that I was thinking about the most while it was going on just because it was a unique experience. I mean in any theater—you can imagine things–but […] this way, it was completely abstract, and you had no idea what was going on around you, which was a really interesting interaction. It's kind of like off-putting at first and then just intriguing, I guess. – P6*
- *Well, as a prop, I feel very weird. [Chuckles]They did let me do like a pose where I'm leaning on one AR person but that person doesn't exist, right, that person only exists in AR. So, it feels strange, and I don't know what else they are doing around me – P12*

6.3.3.4 Active-adaptive Interactions

Whereas passive-adaptive revolved around the process happening to the participants, active-adaptive codes represent intentional expressions the participant is aware of making with a rhetorical choice. These were the most common kinds of interactions in the workshops. Excerpts coded for active-adaptive always present some form of intentionality to the expression, use of a particular affordance, or an attitude toward the XR scene itself.

Not surprisingly, given the mediocre usability scores, active-adaptive interactions were associated with median usability. However, passive-adaptive interactions, ones involving little is no interaction with the mobile app, showed good usability.

- *Because like the objects I can use were kind of limited, like there wasn't every single object out there in the world that I could put into the reality and I think the drawing part would have worked if I could also like draw and move what I had drawn. As in, I could create and draw an actual 3d object and then use that as an object instead of a pre-made ones. – P9*
- *I sculpted a person by thinking about the moment when I felt safe and I drew and put props accordingly – P10*

6.3.3.5 Qualitative Code Frequency Analysis for Interactions

As discussed, the documentary voice as participation is exercised through interaction with, through, and against the interface. The paradigm is comprised of either an active or passive mode of interaction, that is either immersive or expansive, and relies upon a strong concept. While seven strong concepts were identified, only three were mentioned by participants in both the interviews and surveys. In order of code occurrence, they were optical scenography, the placement of AR objects in space; fingertip rays, drawing in 3D space; and generative exploration, discovering new content through movement. By looking at code co-occurrence and averaging it by interaction pattern, it was possible to rank participants' most frequently mentioned voice as participation pattern. Subsequently, the patterns clarify which interactions participants were most likely to use. Further, these

patterns of interaction were used rhetorically through the voice as participation to put-forward their perception of the IFSW material. The results are listed below in Table 29.

Table 29 Documentary Voice as Participation Code Co-occurrence Averages

Voice as Participation Pattern	Voice as Participation Score[75]
Immersive + Active-adaptive + Optical Scenography	54
Expansive + Active-adaptive + Optical Scenography	46
Immersive + Active-adaptive + Fingertip Rays	45
Expansive + Active-adaptive + Fingertip Rays	38
Immersive + Passive adaptive + Optical Scenography	33
Expansive + Passive-adaptive + Optical Scenography	26
Immersive + Passive-adaptive + Fingertip Rays	25
Expansive + Passive-adaptive + Fingertip Rays	18

The results are consistent with what was expected given the affordances of the mobile app. The primary interactions involved placing 3D objects in space. However, participants who referenced fingertip rays in any voice as participation pattern had higher expression and reflective representation scores. This is likely because the participants used the drawing tool when there were no available 3D models.

[75]Voice as Participation = Code Occurrence of Method of Participation (Immersive/ Expansive) + Form of Participation (Active/ Passive-Adaptive) + Strong Concept with Affordance (Optical Scenography, Fingertip Rays, Generative Exploration) / Number of Participants

Regarding the cumulative identifiability score mentioned in the previous section, participants who mentioned optical scenography over 16 times and/or fingertip rays over ten times were more likely to have a higher score. This particular pattern existed for five of the 13 participants with the highest cumulative scores. Four of those participants were in the highest scoring image theater groups, Group 3 and 2 respectively.

6.3.4 *Codes Regarding the Co-created Representation's Identifiability*

The following codes relate to how identifiable the XR representation of reality was between individual participants, the group, and external community. However, these codes were not frequent. Participants with high cumulative scores generally had the highest frequency of these codes. Here are codes from users with the high frequency and high cumulative identifiability scores.

- *Yeah. I think it was more making a space around the person that reflected the 'I feel safe when' rather than showing more emotion in the actual person being portrayed – P9*
- *It seems like people find safety or feel safe in similar situations – P4*
- *When my team members were creating it, it matched up with my views of how the scene should be, like how it should be related and conveyed. – P16*
- *When I saw those lines when we were doing walking back and forth activity (sociometry). When I saw those lines […] I don't know what I felt but then it just felt alive. So, it's hard to describe—but then to see those different colored lines effectively delivered that everybody's different because each color was different and*

then each color had different lines. So, it was like a yeah, a good representation of how unique we are. – P5

- *Yeah, definitely. Because our card was, "I feel safe when I'm eating things that I love." And, I feel like yeah, we were able to depict a scene […] we were able to show like a dinner table with different items which I think is a realistic depiction of someone having a meal they would enjoy. – P2*

6.3.5 *Anecdotal Observations from Video Recordings*

Video recordings were taken of user's phones during the workshops and of their participation and movement during the experience. These videos were not coded, but anecdotal evidence after watching them supports data around usability. Additionally, some observations can be made about how users moved about and engaged in the workshop space.

Participants who had poor usability scores took longer to execute interactions on the mobile app than their peers. This was particularly true for novice participants. However, high usability scores did not always correlate with making faster choices within the mobile app. Considering that users conducted most activities in pairs, it must be considered that they deliberated with one another. During this time, the screen records no interaction. This absence of data is not a failed interaction though; it is just in a different domain. It substantiates the play and performance outside of the OR app. In future studies, recording audio of participants engaging in the activity would clarify these moments.

The movement of participants and how they comported themselves changed between the two workshops. In the workshops without emerging media, participants moved about the space with more energy and intention. From the perspective of the camera, they traversed the space more often. Additionally, when it came to being engaged in the workshop games, the attention of users was focused on the creation of the scene. They also showed more engagement in the sculpting aspect of Image Theatre by circling their scenes as they created them. P1 described this as, “it was like you could scalpel everyday life.”

In the INFW, participants moved less and traversed the space less frequently. Attention was focused on and through the devices instead of on one another during downtime or while transitioning into another activity. Once an activity would start, attention directed via their gaze was directed through the device at participants' peers. Participants appeared to move less and gaze through their devices more, constraining their movement to a particular spot or angle. In interviews, it became clear that this was due to alignment issues with physical objects and a desire for the AR to reflect its physical environment. Additionally, in the INFW, participants spent more time looking bored or despondent when they did not have access to the AR and were being sculpted by their peers. In interviews, some participants mentioned that being the subject of the digital-shared-feminist gaze made them feel excluded, and so they checked out.

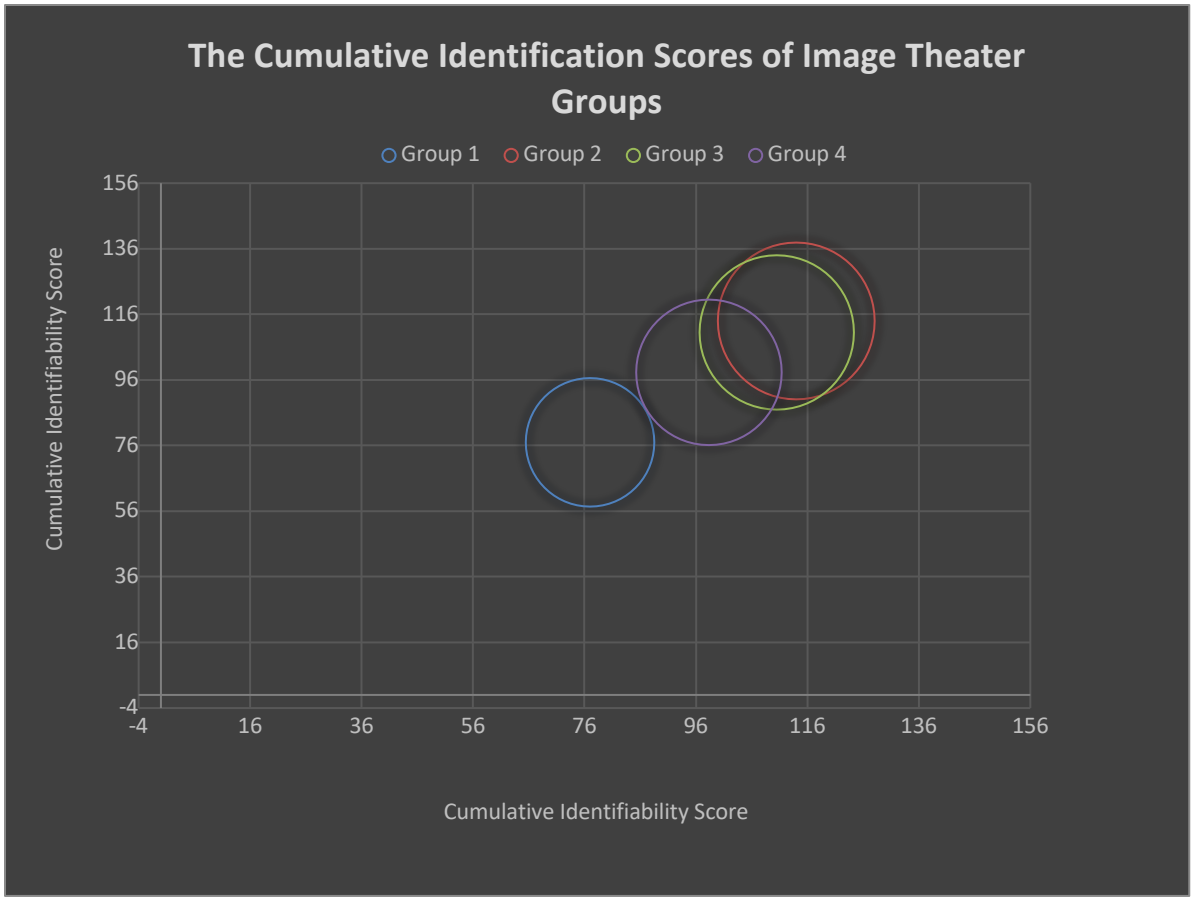

Figure 45 The cumulative identification scores of image theater groups. Group 1 (77), Group 4 (99), Group 3 (111), and Group 2 (114).

6.4 Answers to the Research Questions

The workshops aimed to explore how emerging media's affordances could be rhetorically used to create identifiable representations of reality that might lead to social action. Four research questions were posed to clarify the role of XR in this process

1. How well did participants utilize the practice and the mobile app to come to an agreed upon AR representation of the documentary material?

First, yes—participants did come to an agreed upon AR representation of the IFSW documentary material. However, there were discrepancies between the groups. Looking at Figure 45, Group 2 and 3 had the highest scores, with Group 2 having the highest belief that it was identifiable by the group; Group 3 believed that their scene best reflected the documentary material. These two groups also held the second and third ranks for usability, respectively. Usability and the capacity to successfully express oneself through the app had a strong influence on whether or not groups believed that their AR scene was an identifiable, co-created representation of reality.

Novices were more likely to believe that the AR scene they created was an agreed upon and reflective representation of reality. Experts, on the other hand, did not believe that they had created an XR representations that was reflective of the IFSW material. They were, however, much more confident that what they had created was an identifiable representation. Novices showed a much higher variability regarding that group confidence. It implies that the digital-shared-feminist gaze was utilized more by experts, who had greater usability and expression scores, than the novices. Furthermore, general users who had statements frequently coded for shared gaze and active-adaptive interactions showed a greater belief that their XR representation of reality was identifiable.

Novices' belief that their XR representations of reality were reflective of the documentary material may be due to their distance from the IFSW stories and campaigns. Whereas experts met the founding artist and engaged with the IFSW material for some weeks, novices had only around 10 minutes. This limited engagement with the source material may have resulted in novices more easily believing that what they created was

reflective. This would also explain why experts with high expressive scores felt like what they were creating was less reflective. They were unable to create a scene that accorded with their in-depth understanding of the IFSW material.

2. What made a participant's AR representation of the documentary material identifiable to others in the group?

Not all groups felt like their experiences were identifiable enough to create knowledge. Groups 2 and 3, who had the highest usability and expression scores, ranked second and third for how reflective their scene appeared. Participants who viewed their XR scene as reflective of the material and situated in the physical space had higher identification scores. Additionally, Groups 2 and 3 had the most code co-occurrence for documentary voice as participation items related to the expression of the idea and identification scores. Subsequently, how one exercised their documentary voice impacted the overall identifiability of their representation of reality. A higher identifiability score would indicate that the experience was capable of creating knowledge. This was backed up by the code frequency of these co-occurrences in Group 2 and 3, which was over 27 mentions for each.

3. How did AR contribute to the identification and create knowledge about the constructed scene?

Looking at the two highest scoring groups, some insights can be drawn about which rhetorical affordances impacted how identifiable the representation of reality was. The below bulleted items below show the highest code co-occurrence with one another. Further, they align with quantitative factors.

- Good usability
- Successful expression of documentary material
- Embedded values through the digital-shared-feminist gaze
- A belief that the participant's group would consider it identifiable
- A belief that the community would view it as identifiable
- Situated in physical reality (utilizes the physical environment)
- The most common use of the following voice as participation paradigms:
    1. Immersive + Active-adaptive + Optical Scenography
    2. Expansive + Active-adaptive + Optical Scenography
    3. Immersive + Active-adaptive + Fingertip Rays

Given that Group 2 and 3 have the highest scores, and these factors were the strongest contributors to those scores, the above factors are presented as the most likely to impact how identification is achieved through reality media. Looking more closely at the groups, Group 2 had the highest frequency of codes related to the "reflection of the campus culture" concerning the scene. They also had the highest score when it came to the social action questions. Group 3 on the other hand, had the greatest usability, usability confidence, and expression scores. App usability and the capacity to express oneself cannot be discounted as a factor impacting identification.

There are a few other different intersections that clarify how participants construct identifiable representations of reality. This information is based on quantitative data and is bulleted below.

- High scores in the expression of the idea (>35) and reflective representation (>32) were associated with higher cumulative scores. This also carried over into the social action questions.

- As long as the expression of idea score was (>34) and scene domain was (>30), participants perceived that the community and group would accept their representation as identifiable.
- Scores of (>36) for reflective representation and (>30) for scene domain were present in responses from participants who believed that their scene would be seen as a social action.

As might be expected, believing that others will act through the constructed story resulted in participants personally feeling that their XR scenes were identifiable. In support of many reality media storytellers, the utility of the physical environment was positively connected with generating the identifiability of the XR scenes.

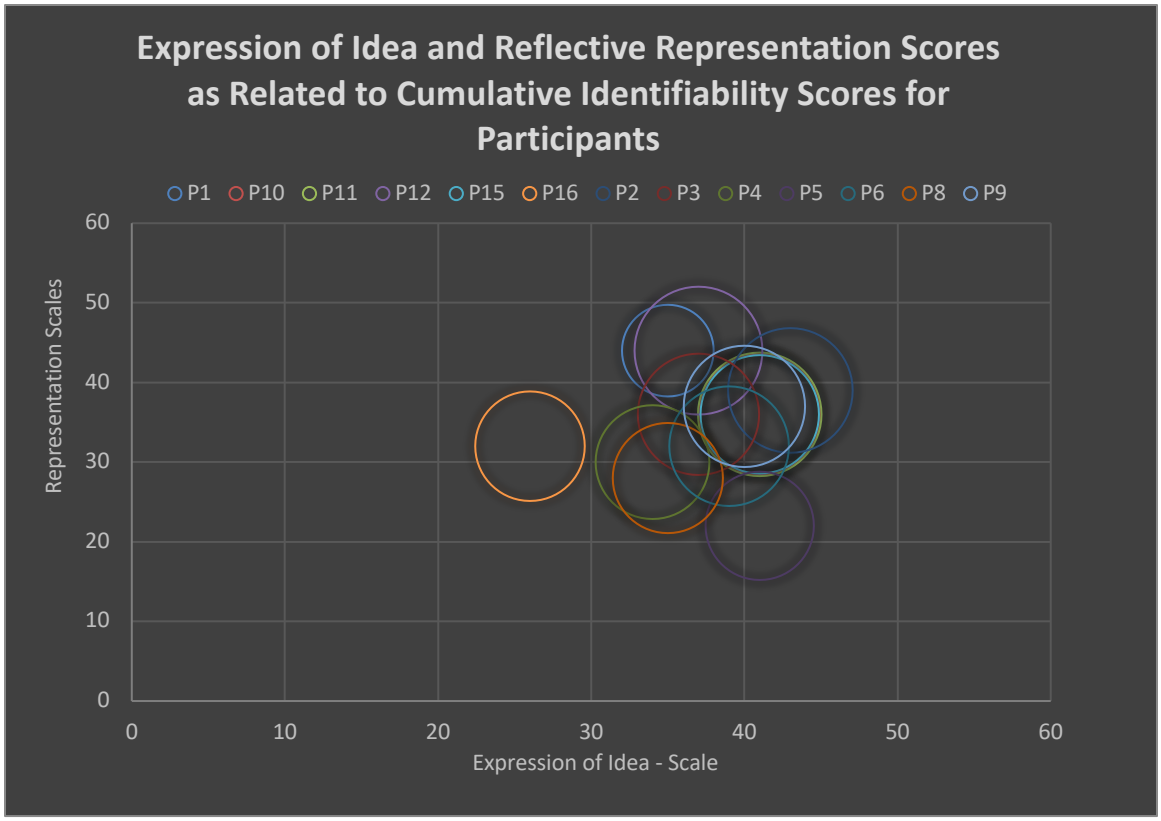

Figure 46 Expression of idea and reflective representation scores as related to cumulative identifiability scores for participants

4. Why were the AR and Interactive Non-fiction workshops considered a compelling experience for motivating social action (consubstantial)?

An XR representation of reality that is co-created, well-expressed, and reflective of the non-fiction material may be a useful tool for creating social change. This is presented in Figure 46. Mark Skwarek's AR work with the Occupy Movement has asserted that such experiences with reality media might be influential in this regard. The results from the workshops do seem to support the claim. Eight of 13 participants felt like the tool would be useful for social action. These same participants believed that the XR scenes would be perceived as identifiable enough to create knowledge. Code co-occurrence and quantitative

scores support this conclusion. Additionally, Groups 2 and 3 saw the most significant correlation between these factors and had the highest cumulative scores. While further study is required, the qualitative code co-occurrence frequency and the quantitative trends indicate reality media can be utilized in an INFW to create representations of reality that may be perceived, by participants, as capable of leading to social action.

6.5 Discussion of Results Through the Rhetorical Affordances Framework

These presented conclusions are foundational steps toward understanding how the media affordances of XR can be used rhetorically to construct representations of reality that are rhetorical and didactic.

6.5.1 *Design Affordances for Identification*

Participants relied equally on the physical reality and the digital artifacts available through the mobile app to create identifiable representations of reality. In terms of the physical, participants used tables and chairs as part of their representations. The capacity for the digital artifacts to respond contextually to the physical environment increased the identifiability of the representation. Beyond the physical environment, participants did not rely on much else. They did not use the IFSW cards themselves or their physicality in their representations. Participants only used them as source material. In fact, the lack of detail in some of the cards the participants chose made it more difficult to construct an identifiable representation of reality. Details in the source material acted as creative constraints for the participants and helped to focus their representations.

In terms of the XR affordances for identification, participants utilized the 3D models as optical scenography. As they had chosen these 3D models themselves it was hypothesized that their use in the workshop would make their representations of reality more identifiable. This turned out to be true. Even when a model was not available, identifiability was not negatively impacted. Instead, participants used the spray-paint tool with the fingertip ray to create their representations. Participants did use all manner of 3D objects and did change their color or texture to fit their representations. The only XR material they did not use were the 360-degree VR portals that they took pictures for. This was likely due to the lack of location specificity in the IFSW cards chosen for the activity.

6.5.2 *The Digital-Shared-Feminist Gaze*

The digital-shared-feminist gaze was the most rhetorically impactful aspect of the app and workshop. Multiple users positively commented on being able to see and create with one another in a shared media actuality. This positive reaction to aligns with effect of Paulo Freire's "objectified reality", Augusto Boal's "gnostic space", Jacob Moreno's "surplus reality", John Grierson's "media actuality", and "Bill Nichol's "axiographic space". All of these spaces are abstract conceptions of representation, rhetoric, ethics, and aesthetics connected to representing reality. The digital-shared-feminist gaze afforded by XR materializes and spatializes this process for participants. Their abstract relations to their reality were constituted in a spatialized media form. Together, they co-created these representations and critically reflected on the process. Each participant contributed their situated knowledge to create a polyvocal representation of reality that was identifiable to the group.

This process of critical reflection and co-creation occurred when the participants embedded their values into the representations. Their discussions with one another on how to place objects, which human models should have animations, and how their peers should roleplay within representations were all part of this process. Participants embedded values that resonated with them personally, their group, and the broader campus culture. The capacity to embed values was tied to access to the gaze. Those who had access to the gaze were able to embed values in both the digital and physical domains of a representation. Participants who did not have access could only use their bodies in space. This was a source of frustration and discomfort for participants who were the subject of the gaze. This inequity of access and its effect speak to the political power of the gaze and the affordances of reality media.

6.5.3 *The Documentary Voice*

The documentary voice in the workshop was participatory and reflexive. Participants created their own representations through interactions and participatory performance activities. This was an intentional choice, one that makes the app and workshop distinct from the work of Nonny de la Peña and Chris Milk. De la Peña and Milk rely on an authorial documentary voice in their INF experiences. Participants in their experiences are constrained to passive and active witnessing alone. In the workshop, the app enabled participants to voice their representations through a multitude of interactions and performance techniques.

Participants who were the most active in exercising their documentary voice were the most likely to finds their scenes identifiable. Conversely, those that interacted very little and did not use their documentary voice were less likely to find the scenes identifiable. This is likely because participants actively creating the scenes took ownership of their representations. These individuals felt like their representations of reality resulted in the creation of knowledge. Learning how to use the affordances of the app in this manner was how participants gained literacy in the emerging media.

6.6 Success in the Workshop

To achieve success in the workshop, participants had to create an identifiable representation of reality. The participants had to feel like their representation counted as knowledge about reality. In addition, it was hoped that the representations created in the workshop would result in social action. At another level, the practice of the workshop was meant to provide access to an emerging media and an opportunity to gain literacy in its rhetorical affordances to create representations. The dissertation's workshop achieved these goals.

Participants succeeded at creating identifiable representations of reality about safety on campus. They utilized their own memories and feelings as well as documentary source material. Half of the groups involved in the workshops felt like the representations they created counted as a form of knowledge about "feeling safe". Critically, 60% of the participants believed that the representations they created could lead to consubstantial social action. This is a positive indication that the workshop can be used as a site of

democratization and the process could encourage social action. Lastly, the participants all received training on how to use XR to create an INF representation of reality. Although time was limited, even novices learned how to use the affordances of the media to rhetorically represent their experience of reality and create knowledge about it.

CHAPTER 7. FINAL INSIGHTS: REALITY MEDIA'S RHETORICAL AFFORDANCES

The study and the use of the Rhetorical Affordances Framework (RAF) clarifies the rhetorical affordances of reality media for INF. Reality media's rhetorical affordances include first, the ability to construct digital scenes that are responsive to the physical environment; second, for this construction to be participatory through a digital-shared-feminist gaze; third, be comprised of creative and rhetorical expressions in both physical and mediated actuality; and fourth, the utility of both physical and digital non-fiction material as evidence supporting the knowledge embedded within an XR representation of reality. These four affordances can be used rhetorically by INF practitioners to construct identifiable experiences in a process that may motivate social action.

7.1 The Rhetorical Affordances of Reality Media

Reality media affords an INF spatial rhetorical text, a mediated actuality, that is a representation of reality. Further, users can embed themselves in these spatial rhetorical texts and interact through, with, and against them. Employing the optics of a reality media device, multiple users can utilize a digital-shared-feminist gaze to look upon one another, embed their values in representations, and co-create with their situated knowledge. This co-creation happens both through the interface of the INF app and within the greater context of the experience through performance activities.

Co-creation of non-fiction knowledge and interaction occurs in both the physical and digital domains. The ability to interact outside the computation of an app affords users a freedom of expression that procedural rhetoric may obstruct. Together, participatory performance activities and the affordances of emerging media are used as part of the documentary voice to create a representation of reality. The documentary voice as participation utilizes rhetorical figures to claim that constructed representations of reality contains knowledge. For reality media, this occurs through the active co-composition of optical scenographic elements (3D models) in relation to physical space.

The representation of reality, the mediated actuality, is created to be identifiable to others. It is rhetorical. The representation's argumentation can achieve INF's goal of consubstantial social action. Throughout history, non-fiction producers such as Erwin Piscator, the Workers Film and Photo League, Augusto Boal, and Mark Skwarek have encouraged this social action in different ways. Both Augusto Boal and the League of Workers Theaters planted actors in the audience or performed in public spaces. Erwin Piscator and the same group used coded language to identify with their audiences. Others, such as John Grierson and Dziga Vertov sought to envelop their audiences in their world, to have them act together from an ideologically driven perspective.

Media technologies afford new opportunities to identify with one another in a way that leads to social action. For example, the handheld cameras of the 60s enabled the reflexive documentary form of cinéma vérité. The military junta of Brazil in the 70s used broadcast television to elevate traditional values and stamp out progressive viewpoints. In the 90s, the internet afforded collective intelligence and the ability to identify with the

anonymous performances of others. Now, reality media have afforded practitioners with the ability to co-create with one another through the rhetorical instantiation of 3D objects in their representations of reality.

Through an INFW, performance tactics are elevated and integrated into the co-creation process afforded by a mobile app or other digital INF experience. This synthesis of practical participatory performance tactics and digital interaction enables participants to express themselves both through and against an app's interface. Rhetorical mechanisms like realist enargia, polyvocal epiploce, and auratic presence are not necessarily unique to reality media, but INF experiences frequently invoke them. Their use by participants in the INFW occurs in both the digital and physical realms.

7.2 The Interactive Non-fiction Workshop

On the campus of the Georgia Institute of Technology, the INFW was a moderate success. Participants believed that the scenes they created through reality media were identifiable and that they could lead to social action. Depending on the organizational structures around the workshop, the INFW provides an essential venue for deconstructing oppressive myths in the community. On Georgia Tech's campus, these myths involved the stressful, overly competitive, academic environment and the lack of mental health resources. Students who had interpellated these myths believed that their suffering was a necessary part of their experience. The INFW and the IFSW material helped to clarify this and other safety-related issues on campus.

7.3 The Rhetorical Affordances Framework and Future Work

The Rhetorical Affordances Framework was designed for any INF experience that takes uses the affordances of an emerging medium. It can uncover the affordances that are networked in the service of achieving identification. It can also be used as a design spring board for marshalling together all of the different rhetorical affordances that go into an INF experience. Through each of these affordances, practitioners and participants embed their own values. To continue to prove its utility, the RAF should be applied to further INF forms. What the framework elucidates can be validated by interviews, surveys, and other instruments with INF producers.

7.3.1 *The Future of the Our Reality App*

The Our Reality app will continue to be developed to make its interface more robust and to smooth out technical issues. The usability studies and interviews from the students have proven that this is critical to the construction of rhetorically effective and didactic representations of reality. In addition to this work, a database of co-created media actualities will be developed to store the work participants create through the INFW. This archival affordance would enable participants to come back to their representations of reality to continue modifying and clarifying them with additional groups. This achievement would complete the inclusive vision of a digital-shared-feminist gaze. A plurality of participants could modify the representation over time to make it identifiable

The OR app in its current state will be available to iOS users through Apple's TestFlight, a beta distribution service. As the app becomes more robust, it will be released on the Apple App Store and Android Play Store. Admittedly, accessibility to mobile

devices that can run the app is an issue. This issue is an obstacle to expression of a representation of reality in an INFW. Workshop facilitators should strive to find funding and provide access to devices so participants do not have to bring or use their own.

7.3.2 *The Interactive Non-fiction Workshop*

There were a few lessons from the INFW on Georgia Tech's campus that will inform future work. The workshop process needs to begin many weeks before the actual event. Participants should be involved in modifying or creating their version of the Our Reality app. This involvement could be as fundamental as requesting particular 3D models and 360 images to developing new tools for creative expression. Participants should have some awareness of whatever media is in use, its grammars and how it creates representations.

On the day of the actual workshop, facilitators should expect to plan an eight-hour experience that engages people for the entire day. Sheila Kerrigan and Dr. Kilkelly, the facilitators of the Georgia Tech INFW, both intimated that a more extensive period with the participants would have resulted in more powerful representations of reality. If possible, involving multiple groups from the same community within the INFW should be considered. This inclusivity is particularly helpful if the events being discussed and represented are local to the community. This focus might mean planning an INFW that takes place over many days. The upside to this multi-day experience would be consistent engagement throughout the process.

Throughout this work, I have referred to the role of the facilitator and how they should attempt to focus most of the storytelling through the dialogic activities between workshop participants. Similarly, I have turned a critical eye toward the influence of procedural rhetoric in shaping INF. In both instances, I have positioned the facilitator and the procedural rhetoric on the periphery of experiences. This positioning has been to honor Paulo Freire's admonishment of the banking method of education and warn practitioners of the influence of procedurality. However, I want to clarify, that the facilitator is never outside of the process and procedurality is always present. The illiterate peasants Freire was working with would not have taken to his Pedagogy of the Oppressed unless he was there. I believe the same of Augusto Boal and those he worked with at his Theater of the Oppressed workshops. Without his presence and direction, not to mention celebrity, the workshops would not have been well attended. The same is true of procedurality in an INF. No matter the experience, procedurality, and computation will frame some aspect of it.

Without my research and collaborator Melissa Foulger, the dissertation's workshops would not have occurred. Similarly, the work of Madison Cario and Jennifer Edwards, who started the conversation of safety on campus through an artistic medium, was crucial. Without those initial steps and their help, the workshop would not have happened. Had I not chosen to explore the rhetorical affordances of reality media through community workshops, the participants would not have had the same access or gained literacy in the same way. As a facilitator, I was integral to the process, and my presence

shaped it. Further, my capacity as a programmer, developer, and designer impacted the procedural rhetoric of the OR app.

Practitioners in INF may claim that they have removed themselves from a participatory process to elevate the grassroots nature of their experiences, but this claim is ultimately rhetorical. Facilitators, developers, and designers always leave their impression on an experience. Facilitators leave this impression by creating, recruiting, developing, and leading their workshops. Developers and designers influence the entire process through the interfaces they design and interactions they develop. The facilitator, developer, and designer's presence—politics, ethics, power, and values—are embedded deeply within the workshop and INF experience. They shape and set a foundation that enables a grassroots experience to be enacted by them with others.

7.4 Limitations

There are some limitations regarding the claims made in this dissertation. Regarding the RAF, it is a theoretical construct that needs to be vetted by industry professionals creating INF and scholars studying the rhetorical aspects of similar experiences. As the framework was constructed using theory, not practical insights from practitioners, its validity as a design tool needs to be evaluated. This evaluation could occur through interviews, surveys, and activities. As for its critical use, I hope that the scholarly community around interactive documentary and INF will engage with the framework.

The claim that the workshop can lead to social action further needs to be clarified. While a public-facing performance about safety did occur a few months after the workshop,

it was not a direct result of the workshop activities. It was only related to the IFSW campaign and safety on campus in general. What the results of the workshop did prove was that participants perceived that the process could result in social action. Key here is the process and not the result. What the social action might look like, how participants could enact it, is still unknown. Subsequently, whether or not an action happened could not be evaluated in this dissertation. There just was not evidence. That being said, with more time and direction, I believe that the workshop could have resulted in concrete social actions. In terms of time, the workshops were quite short at one hour. Providing participants the opportunity to deliberate for longer and roleplay potential actions might have resulted in actual movement.

To evaluate whether or not a social action occurs would require checking-in with participants over some weeks. Beyond this persistent engagement with the workshop participants, it would be beneficial to remind participants of the workshop's goals. During the workshop, participants were focused on creating their representations of reality and less about discovering how to solve the issues they contained. This narrow focus was partially due to the time constraint. When facilitating future versions of this workshop, facilitators should remind participants that they are seeking to roleplay and rehearse future actions to solve issues. This supplemental direction on the part of facilitators may help such actions to materialize. That said, the entire process enabled participants a unique way to reflect on campus issues.

7.5 Final Thoughts

Interactive non-fiction will continue to grow as part of our media ecosystem. From the long non-fiction texts that social networks generate to the embodied reality media experiences for INF, audiences will have a wide variety of ways to identify with and create representations of reality. Understanding how they are doing so is part of media literacy. The affordances that are networked together to create knowledge are done so with rhetorical and occasionally ideological intent. Reality media's capacity to situate spatial representations of these arguments in our lived reality will impact how we identify not just with content, but with one another and our lived experiences.

I believe that in order to create and think through reality media, a plurality of people must engage with the media and learn its emerging grammar. Achieving this level of literacy is not a short or straightforward process. It will occur over time as artists, development studios, and independent producers create INF experiences for reality media. We can speed the process along by enabling students and members of our communities to engage with the media in workshops.

This grassroots effort continues the tradition of the League of Workers Theatres, Paulo Freire, and Augusto Boal. Participants who learn to use the emerging media through the workshop proposed in this dissertation can discover their agency and see reality as fluid and changeable. The oppressive structures of mechanisms in their life are reframed as mutable challenges to be overcome. The representations of reality they co-create with one another develop knowledge about their shared reality. This dissertation's workshop has proven that this practice was perceived by participants as able to motivate social action. The affordances of reality media improve this process by making representations of reality

spatial, mutable, and interactable. It is now up to a new generation of interactive non-fiction producers to use reality media in a grassroots manner to empower communities.

APPENDIX A. RESEARCH INSTRUMENTS, SURVEYS, AND FORMS

A.1 Augmented and Virtual Reality in Interactive Non-fiction Workshop Reflection Questionnaire

Participant ID: ___

Please take your time to reflect on the previous exercise with A/VR in relation to the version without those technologies. There are no right or wrong answers to these questions. If you require more paper, please let one of the researchers know.

1. How did it feel when you were not using AR but your group member was? Where was the AR in relation to you in those moments?

2. How did using the mobile AR tool alter how you created your scene from the traditional mode?

3. What made the AR props, characters, or structures seem like they were meant to be in the spot they were situated?

4. What made AR props, characters, or structures seem like they were out of place?

5. How did you utilize AR and the documentary material from the “I Feel Safe When” campaign or “Safety on Campus” in the exercise?

6. Why did you utilize AR in the manner you described in question 5?

7. What made one use of AR for a particular prop, character, or scene more effective than the traditional mode? Why?

8. Describe your creative thought process about building the scene as an individual.

9. Describe your creative thought process about building the scene in the group.

10. Describe the creative deliberations that occurred in your group.

11. What about the scene you created would you consider a valid representation of the original event?

12. How did the mobile app change how you reflected with the group on safety during the process?

13. What did you learn about the event roleplayed in the scene through the AR part of the process?

A.2 AR Documentary Storytelling Questionnaire

Characterize your experience in the environment, by marking an "X" in the appropriate box of the 7-point scale, in accordance with the question content and descriptive labels. Please consider the entire scale when making your responses, as the intermediate levels may apply. Answer the questions independently in the order that they appear. Do not skip questions or return to a previous question to change your answer.

If you used your own device during the study, now is a good time to upload your screen recording to slack, google drive, or Georgia Tech's one drive.

1. Where does your scene exist?

AUGMENTED REALITY BOTH EQUALLY REALITY

2. How natural does your scene seem in the environment?

EXTREMELY ARTIFICIAL BORDERLINE COMPLETELY NATURAL

3. How well were you able to express the meaning of the documentary material through AR as compared to other media?

NOT AS WELL AS OTHER MEDIA SOMEWHAT WELL BETTER THAN OTHER MEDIA

4. How much did the sensory aspects (sight, smell, touch, sound, taste) of the physical environment impact your creative process in AR?

NOT AT ALL SOMEWHAT COMPLETELY

5. How representative of the original event will the scene seem to those in your group?

NOT AT ALL SOMEWHAT VERY REPRESENTATIVE

6. Is your scene set in the physical world?

NOT SET IN THE PHYSICAL WORLD BOTH EQUALLY SET IN THE PHYSICAL WORLD

7. How much did the sensory aspects (sight, smell, touch, sound, taste) of the documentary material impact your creative process in AR?

NOT AT ALL SOMEWHAT COMPLETELY

8. Does your scene reflect some aspect of the cultural environment?

NOT REFLECTIVE OF ENVIRONMENT SOMEWHAT REFLECTIVE OF ENVIRONMENT

9. How effective do you believe this kind of experience would be for encouraging social change?

NOT AT ALL SOMEWHAT VERY EFFECTIVE

10. How compelling was your sense of AR objects in the space?

NOT AT ALL MODERATELY COMPELLING VERY COMPELLING

11. How much did you reflect critically on the documentary material while you used AR?

NOT AT ALL SOMEWHAT ALL THE TIME

12. How equal were each participant's input into the scene's construction?

NOT EQUAL MODERATELY EQUAL VERY EQUAL

13. Does your scene reflect some aspect of the physical environment?

NOT REFLECTIVE OF ENVIRONMENT SOMEWHAT REFLECTIVE OF ENVIRONMENT

14. How involved were you in the building experience?

NOT INVOLVED MILDLY INVOLVED COMPLETELY ENGROSSED

15. How accurately does your AR scene reflect reality?

NOT AT ALL SOMEWHAT ENTIRELY TRUE

16. Do you feel like your AR objects belong in the physical environment in which you placed them?

NOT PART OF THE ENVIRONMENT BORDERLINE COMPLETELY PART OF THE ENVIRONEMT

17. How representative of the original event or stories of safety was your AR scene?

NOT AT ALL SOMEWHAT VERY REPRESENTATIVE

18. Do you feel like your scene reflects the culture of the community in which it is placed?

NOT REFLECTIVE SOMEWHAT REFLECTIVE

19. How powerful do you believe the AR scene might be?

NOT AT ALL SOMEWHAT VERY POWERFUL

POWERFUL

20. How effective was AR in enhancing the creative process?

NOT EFFECTIVE SOMEWHAT WELL VERY EFFECTIVE

21. How representative of an actual event will the scene seem to those outside of this workshop?

NOT AT ALL SOMEWHAT VERY REPRESENTATIVE

22. How closely did you listen to the peers in your group while you constructed your scenes?

NOT AT ALL SOMEWHAT COMPLETELY

CLOSELY

Last version : February 2018

*Original version : Witmer, B.G. & Singer. M.J. (1998). Measuring presence in virtual environments: A presence questionnaire. *Presence : Teleoperators and Virtual Environments*, *7*(3), 225-240. Revised factor structure: Witmer, B.J., Jerome, C.J., & Singer, M.J. (2005). The factor structure of the Presence Questionnaire. *Presence, 14*(3) 298-312.; Revised for AR by Gandy, M.,Catrambone, R., MacIntyre, B., et al. (2010). Experiences with an AR evaluation test bed: Presence, performance, and physiological measurement. *9th IEEE International Symposium on Mixed and Augmented Reality 2010: Science and Technology, ISMAR 2010 – Proceedings 1(c)*127-136

A.3 Augmented and Virtual Reality in Interactive Non-fiction Workshop User Feedback Questionnaire

Participant ID: ___

Hi, Thanks for participating in our study. We want you to evaluate the mobile AR app, Our Reality. You will be asked to complete 6 tasks using it. There are no right/wrong answers, it is how you interact with the app that matters.

Now please use this system to complete the first task. Please verbalize your thoughts as you move through the interface.

*Remember to be alert at all times. Stay AWARE of your surroundings.Task Scenario #1:

Please enter a performance space through the lobby in the application and draw a balloon.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Overall, this task was very easy.	○	○	○	○	○
I am confident that I completed the task successfully	○	○	○	○	○

Task Scenario #2:

Please choose a partner and draw a tree with their help.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Overall, this task was very easy.	○	○	○	○	○
I am confident that I completed the task successfully	○	○	○	○	○

Task Scenario #3:

Please place a shape in the scene and give it a texture and change its color.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Overall, this task was very easy.	○	○	○	○	○
I am confident that I completed the task successfully	○	○	○	○	○

Task Scenario #4:

Create a small scene using 3D objects. Invite a partner into your AR to change the position of the objects.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Overall, this task was very easy.	○	○	○	○	○
I am confident that I completed the task successfully	○	○	○	○	○

Task Scenario #5:

Choose a human 3D object and select an animation.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Overall, this task was very easy.	○	○	○	○	○
I am confident that I completed the task successfully	○	○	○	○	○

Task Scenario #6:

Place a portal in space. Walk through it.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Overall, this task was very easy.	○	○	○	○	○
I am confident that I completed the task successfully	○	○	○	○	○

Congratulations! Now you have completed all task scenarios.

How likely do you agree with the following statement? (System Usability Scale)

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I think that I would like to use this system frequently.	○	○	○	○	○
I found the system unnecessarily complex.	○	○	○	○	○
I thought the system was easy to use.	○	○	○	○	○
I think that I would need the support of a technical person to be able to use this system.	○	○	○	○	○
I found the various functions in this system were well integrated.	○	○	○	○	○
I thought there was too much inconsistency in the system.	○	○	○	○	○
I would imagine that most people would learn to use this system very quickly.	○	○	○	○	○
I found the system very cumbersome to use.	○	○	○	○	○
I felt very confident using this system.	○	○	○	○	○
I needed to learn a lot of things before I could get going with this system.	○	○	○	○	○

A.4 Interview Script

As an interviewer, be sure to ask the question clearly. You may repeat the question but do not rephrase it unless the interviewee is having difficulty understanding. Do not interrupt the interviewee during the process. Before moving onto the next question, you may ask clarifying questions. These questions must be open-ended and not easily answerable with a yes or a no. Be patient with interviewees but attempt to keep the interview to 10 minutes. Remind the interviewee before beginning that their voice will be altered in the recording and that the audio will be destroyed three years after the conclusion of the study.

1. What was it like creating a scene in augmented reality?

2. Other than the technology itself, how did using AR change your creative process? Why did you make different choices in AR than in the traditional mode?

3. How did you decide which AR props and materials you should use in the design of your scenes?

4. What aspects of "I Feel Safe When Campaign" were particularly useful for your creative AR process? How was this different than the traditional process?

5. Why or why not was the created scene a valid representation of the event? What made it authoritative, or not, in your eyes?

6. What, if any, aspects of creating in AR encouraged you to take a more critical stance?

7. How did AR improve or take away from the creative process?

8. How authentic did the constructed scenes feel in AR and in the traditional mode?

9. Which game was more effective with AR than others? Why?

10. Where do your constructed scenes exist between augmented reality and physical reality?

APPENDIX B. QUALITATIVE CODES AND EXCERPTS

B.1 Codes and Weights

Id	Parent Id	Depth	Title	Description	Weighted	Weight Minimum	Weight Maximum	Weight Default
1		0	Aura		FALSE			
2		0	Cumulative Identifiability Score		TRUE	0	154	0
3		0	Embedded Values		FALSE			
4		0	Expression		FALSE			
5	4	1	Bad usability		FALSE			
6	4	1	Failed Expression		FALSE			
7	4	1	Good usability		FALSE			
8	4	1	Successful Expression		FALSE			
9		0	Expression of Idea - Scale		TRUE	0	49	0
10		0	Great Quotes		FALSE			
11		0	Interaction Type		FALSE			
12	11	1	active-adaptive		FALSE			
13	11	1	expansive		FALSE			
14	11	1	immersive		FALSE			
15	11	1	passive-adaptive		FALSE			
16		0	Myth of Objective Inscription		FALSE			
17	16	1	AR affordance		FALSE			
18	16	1	Other media affordance		FALSE			
19		0	Objects in Scene Domain		FALSE			

20	19	1	Augmented Reality	FALSE			
21	19	1	Physical Reality	FALSE			
22		0	Participant 16	FALSE			
23		0	Political Power	TRUE	0	14	0
24		0	Questions	FALSE			
25		0	Refelective Representation	FALSE			
26	25	1	Not reflective	FALSE			
27	25	1	Not reflective of physical environment	FALSE			
28	25	1	perceived as true by community	FALSE			
29	25	1	Percieved as true by group	FALSE			
30	29	2	true by community scae	TRUE	0	7	0
31	29	2	true by group scale	TRUE	0	7	0
32	25	1	Reflective of culture	FALSE			
33	25	1	Reflective of existing material	FALSE			
34	25	1	Reflective of Physical Environment	FALSE			
35		0	Representation Scales	0 - not representative/ 49 - very representative	TRUE	0	49	0
36		0	Scene Domain	FALSE			
37	36	1	Augmented reality	FALSE			
38	36	1	Physical Reality	FALSE			
39		0	Scene Domain Scales	0 - Virtual / 56- Physical	TRUE	0	56	0
40		0	Shared Gaze	FALSE			
41	40	1	no participation in scene	FALSE			
42	40	1	participation in scene	FALSE			
43	40	1	subject of gaze	FALSE			

44		0	strong concepts	FALSE			
45	44	1	finger tip rays	FALSE			
46	44	1	generative exploration	FALSE			
47	44	1	location	FALSE			
48	44	1	optical scenography	FALSE			
49		0	Usability Confidence Score	TRUE	-12	12	0
50		0	Usability Score	TRUE	-12	12	0

B.2 Excerpts and Code Application

Excerpt Copy	Codes Applied Combined
It was an interesting experience just being able to utilize the space that was around us and in a way that we wanted to use it.	AR affordance, Good usability
AR we found that there was a lot more than we thought there would be especially with the human AR entities as well as some of the other aspects like the vehicles we saw. They're just interesting to use.	AR affordance, Successful Expression, optical scenography, active-adaptive
So it was just the space that we were using was there wasn't too much to use. There was probably just enough. If we wanted to not use anything and fully utilize all the AR entities, we could have picked a space where there were just no objects. So we could just put the objects there and kind of create a scene with that	active-adaptive, immersive, optical scenography, Good usability
My group found later that we found a space that had a chair and tables. So we could... if we wanted to incorporate actual physical people into the space we were able to use those chairs and use the table as well as add AR entities into that space to actually fully create a scene that we wanted to have.	Successful Expression, Physical Reality, Reflective of Physical Environment
I would say augmented reality changed the creative process because normally we won't actually have a lot of the physical objects that we were able to create with augmented reality. One of the examples was in one of the exercises that we did with the chair table. We added cups to the space using the AR entities which we physically did not have and typically that's something we cannot always physically just get on our own instantaneously. Another one that we also added was the plain AR entity which we'll probably never be able to just physically get applying for us seeing that we wanted. So it was just being able to have those things that can instant-- instantaneously come up was just extremely convenient.	Reflective of existing material, Reflective of Physical Environment, Good usability, Successful Expression, optical scenography, active-adaptive, immersive
I would say it changed the storytelling aspect is because we would-- we would always... if not most of the time have all the aspects or all the objects that we want for the actual for our vision. So if we wanted to create, if we needed something we would be able to find it within the resources that we had with AR.	Successful Expression, AR affordance, active-adaptive, optical scenography

I would say it just really kind of tied with everyone's creativity as well as the-- the cards that we had, just kind of reading the cards and then our group kind of brainstorming what we could use within the physical space and then from there what to use with the augmented reality space to fully create the scene that we were all kind of thinking.	Embedded Values, Reflective of existing material, active-adaptive
guess the physicality of I would say the theatre just because that's where we were at the time but just the physicality of this space that we're currently in.	Reflective of Physical Environment
I would say certainly mainly because typically when I think of my-- my answer to 'I feel Aafe' it's much more of a self-defense type of way. A lot of the cards that we did see were a lot more just things that keep people preoccupied or keep their minds off of things that make them feel like they are in danger. So I would say just those cards really just helped expand my way of thinking in terms of just how I think of how we could use these objects to kind of express creativity.	Reflective of culture
Okay. I would say... mainly with sculpting the body for safety what we were limited was just by one person and the person's physicality like how a person can shape themselves in order to kind of create what the... I guess artist was kind of thinking of when they were thinking that 'I feel safe with' the augmented reality. The safety-- kind of the safety aspect was at least for our particular activity we needed more than one person. We needed as many people as we could possibly have because our scene was just kind of more of a kind of a gathering I guess of people to make the person feel safe. So we would be limited if we were just to use physical bodies by the number of bodies that we had there. With augmented reality we could create as many-- as many augmented people as we could in that space that would just kind of interact with each other to kind of go more with what we were thinking in terms of the person feeling safe when they're within a group of people.	Reflective of existing material, AR affordance, optical scenography
would say they were much more in AR just because of the resources that we had. Just it really was kind of... that wasn't entirely I wouldn't say that's the only reason that it was but it was one of the stronger reasons if so just because AR just has a lot more resources than physical space.	Augmented reality
So I would say resources I guess the access to those resources and how instantaneous they were. I guess ability to really shape like typically I would say that you could use people like the physical person you would be able to mold them a lot better in terms of what you wanted that person to do with AR. You're kind of limited to the templates that the code just has for you if the person can only sit down or stand-up but with this particular app that we were using it was a lot more... there were just a lot more options and I thought there would be because there was one person sitting, standing, cheering, crawling there was just a lot of different things that we could have utilized so and just for that particular scene we had all the different actions that we needed.	Successful Expression, Good usability, AR affordance, optical scenography, active-adaptive, immersive
INTERVIEWEE: That way. Yeah. There we go. Okay. Great! Alright! So, the clit... so to go on to continue that there to clarify that so was it the access and the immediacy and etc of all these different kinds of options that made it more representative and authoritative for you? INTERVIEWEE: Yes	immersive, active-adaptive, Successful Expression, Good usability, Reflective of existing material
So I guess with the AR one of the things that we were trying to have that we were really focusing on is just the placement of the objects. So just objects and physical space they'll be where you want them to be. In augmented reality what we were having a problem with was we were standing on one place. We had the person that we wanted sitting in the chair. When we wanted to move around and kind of fix another object once we move to that new spot the person would no longer be kind of aligned with the chair. They would be just maybe next to it, they'd be on the table. It's just small tweak that we would have to do that they were just not lined up and then we've had to fix that and once we moved it to that spot again that we wanted it in that spot that we were currently standing in once we move to another spot to fix	Bad usability

something else that person would be kind of gone again. So I would say that was just. One of the things that we were really focusing on with the augmented reality space that we were kind of I guess more critical about but yeah.	
I guess really just AR is just something that people are not typically... people are just not accustomed to right now. So it really is just a new realm of create... it's just a new realm of people of a way of thinking now. It's just; I mean there's a lot of resources involved with the AR but just to be able to kind of combine different aspects that you would never have access to, just being able to think a little bit more about how you could use a certain thing instead of being limited to- Oh I have this piece of paper maybe I can cut it up maybe I could draw something on it. Now you actually can create an augmented version of what you wanted to either draw or construct with like the limited resources that you did have. It's just a lot now that you have that. Now that you have the resources that you want for your scene, how are you wanting to use it exactly, how you like would actually want to.	Successful Expression, AR affordance, Embedded Values
would say it's a lot more of the augmented reality side mainly because you are limited to the screen that you're looking at to actually see the scene	Augmented reality
whether you take the picture or whether you're physically there and people and you're recording it or just people are looking through the camera to see the scene, you are very limited to that phone screen to actually see exactly what the scene is. So I would say it's it does feel a lot more on the augmented reality side. There is a physical aspect because the people there you can have the scene without the actual physical space or the physical people there but in order to actually capture exactly capture the scene, capture all that it's heavily do to the phone and the screen.	Augmented reality, AR affordance
I would feel, during those moments I truthfully did not know what to do just because the people, my group members were creating the scene and the... obviously the camera was facing me. So I couldn't even look to see what they were looking at were there replacing things. So it was just kind of me sitting there but being useful to the people with the phones to create the scene that they were trying to create. So just during those times there wasn't anything for me to do but just wait to see what they're doing. Once they were done with that I was able to kind of see what the scene that they set up and how it looked for me but yeah other than that.	subject of gaze, no participation in scene, passive-adaptive
Um… just-just the idea that like-- yeah it's-- like really your own creativescope that you can basically use thetools that are given to you to createanything	Successful Expression
was-I wassort of looking for-for like-- the likethe artificial tools that I had, like Iwas looking for realistic places to put there and like trying to combine realitywith their artificial objects and stuff	AR affordance, Augmented Reality
Yeah-yeah I think so.Um… I think like-like thereason I look like I was inclined to useAR was that just with body sculpting, itcan be hard to really convey a messageand with like the AR components, you canreally add some-some I guess likeclarification and enhancements that youwouldn't be able to with just bodysculpting.	AR affordance, Successful Expression
So in terms ofbody-sculpting, the-- we were working withsculpting the bodies to convey some sortof feeling and so the feelingthat I had was that I decided to sculptwith a feeling of like joy and so it wasjust like some of the objects that I sawjust conveyed that more like a star would convey like some something likemore like happier than like just like alike a normal sphere would, and then likeyou could also like color it on top ofthat.So you could like add like a brightlike color to it.And so like that really helped decide which like objectsto put down.	Successful Expression, Good usability, active-adaptive, optical scenography, immersive
And so like with justsculpting, all you really have are likebodies and like people to work with butwith like AR included, you can addjust like a lot-- you can either add morepeople or more	Successful Expression, active-

objects that reallyenhance the scene. In terms of the process, Iwould say it's still similar to thetraditional sense.	adaptive, immersive, optical scenography
kay yeah.So-so thecard-- the specific scene that I workedwith was it was like I feel safe whenI'm eating with my friends.And so if-ifI was just given even just like theprops that were laid out in like realityand like the person that we had, likethere's not much that we could reallywork with that would convey—that wouldlike a 100% convey that theperson is sitting with other people andis eating. But with the AR components, we were ableto add more people that could contributeas friends and we could add props; I canrepresent like different types of foodor like coffee or things like that	Reflective of existing material, optical scenography, active-adaptive, immersive
Yeah, Ithink so.There were-there were a couplehiccups in like orienting the objectsthemselves but other than that, yeah Iwould say the scene was pretty valid	Bad usability, Reflective of existing material, optical scenography, active-adaptive
Uh… well so I thinkwhen it comes to like creating the scenewith just like body sculpting, you don'treally have to think about placement asmuchjust because it is just less usually asingle object.But when it when-when you're using AR, there are likemultiple objects that you can use tolike the placement of each individualobjects in the entire scene; I feel it matters a lot more.	AR affordance, active-adaptive, immersive, optical scenography
ith the two lines, I would say, it didn't take away from it at all andlike it did its job and enhanced itbut with the scene creation, I think, justin terms of like there-there were moments where like the AR componentsthat we add wouldn't exactly line up, like-like where we placed it orlike it would like phase through, like-like reality-- like-- so like the way we didour scene was we had tables and chairsthat were like laid out in reality and we had like our person — our designatedperson like sit down on one of thesechairs and so this is all like thereality landscape.And then in AR, weadded like-like a cylinder to representcoffee and then like a couple AR peoplearound.And so when we tried to make likethe AR people sit down, sometimes theirlegs would phase through, the-the chairor like phase through the table.And so like it was moments of those likeunrealistic aspects that sort of took away from the scene.	Bad usability, Failed Expression, active-adaptive, optical scenography
So in terms of the-- so the-the secondgame where we have the two lines, I wouldsay the AR components, since like thereweren't as many AR components ascompared to like the actual realitywhich was just a like a bodily structure, it really served as an enhancing featureand so like it didn't really-- like it waslike it like worked really well there.	Successful Expression, Physical Reality, AR affordance
Just because in-in terms of like wherethe objects would were placed like theyeither wouldn't stay when you moved around, like in space, like it started tolike I guess just move off the table, or like the people that when theywere sitting down, yeah, they did, likephase through tables and chairs.	Augmented Reality, Not reflective of physical environment
I would say the scene was likealmost exactly in the middle justbecause we used a lot of like tables andchairs and I guess humans in termsof like a reality landscape and then from an AR perspective, we use almost thesame amount of AR objects.	Augmented reality, Physical Reality
So I would say it was sort of a combination-- it was like a weird combination of like boredom andexcitement.Boredom, in the fact thatlike there wasn't really anything Icould do I was just sitting there; andlike in terms of augmented reality, likeI wasn't able to see anything that washappening.So there was-- there was nothingreally like going for me, but I was-- Ialso felt excited in the fact that Iknew-- I still knew that something washappening. I was excited to seewhat… like what-- like my team members werecreating and like what their creativeminds were coming up with.	Shared Gaze, subject of gaze, participation in scene, passive-adaptive, immersive

Yeah, Ifelt like it —met my expectations, just-- I think that might havebeen just because of the scene like interms of the stayed the-the card that wewere handed, I feel like there wasn't alot of difference in terms of how peoplethink about that scene.And so like whenmy team members were creating it, it sortof matched up with my views of how thescene should be, like relate it andconveyed.	Embedded Values, Shared Gaze, participation in scene, passive-adaptive
there were like a couplehiccups and stuff where like I justcouldn't like move objects or I couldn'tresize them and I feel like that reallyended up taking a lot away from like theAR aspect, but otherwise, I had a goodtime.	Bad usability, Failed Expression
It was exciting, waiting to see what they were creatin	Shared Gaze, subject of gaze, participation in scene, passive-adaptive, immersive
The AR in those moments was in my imagination	
We were able to be more creative and add props, not just rely on sculpting gestures	Good usability, AR affordance, active-adaptive, expansive, optical scenography
They aligned well with the sculptor's pose and added to the overall mood	AR affordance, Reflective of Physical Environment, optical scenography
Took the key point of the card and turned it into a scene that highlight that in relation to the person	Reflective of existing material, active-adaptive
t allowed more creative freedom	Successful Expression, immersive, active-adaptive, optical scenography
put images with what the person's gesture/ pose was related to IFSW	Reflective of existing material
It provide context and made it less vague	Successful Expression, Reflective of existing material, immersive
Trying to add as much detail as possible	active-adaptive

Different perspective could build off one another	Embedded Values, expansive, active-adaptive
How to represent/ place items and were a combination of ideas	Embedded Values, expansive, active-adaptive, optical scenography
The emphasis on food—comfort, thinking, and touching food and comfor	Reflective of culture, Reflective of existing material
Common everyday things make for people to feel safe because we are familiar with it and have a connection to it	Embedded Values
I was wondering what changes they would mad	Shared Gaze, subject of gaze, no participation in scene
a lot easier since all you need is a phone	Good usability, AR affordance
AR props I used seemed very artificial since I had a hard time adjusting the size and spot of the prop	Bad usability, Failed Expression, active-adaptive, optical scenography
I created positive images by using the props	optical scenography, active-adaptive
sing AR creates a new reality and I can just dive into that reality	AR affordance, immersive, active-adaptive
I sculpted a person by thinking about the moment when I felt safe and I drew and put props accordingly	Successful Expression, active-adaptive, finger tip rays, optical scenography
I made changes to what others made	active-adaptive, Aura
We all came up with ideas and what props to put where	Embedded Values, Shared Gaze, participation in scene, active-adaptive, expansive, optical scenography
flowers because they were a comforting image and expressed happiness through curly lines	Reflective of existing material, Reflective of culture
I could really dive into the new reality	Augmented Reality, Augmented reality,

	generative exploration, immersive, active-adaptive
learn more about how to visually express the scenes	AR affordance, finger tip rays, optical scenography
I think it was pretty fun and [Inaudible 00:53]and the only problem was, you know, there were fewtechnical issues but when those wereovercome, it was enjoyable and interesting.	Bad usability
t kind of like made things likeboth personal and impersonal at the sametime because, you know, before it was just people working with other people, but then withthis, you kind of also got to put yourown flair into it	Aura, active-adaptive
You got maybe some, youknow, creative choices that were strictlyyour own, but then other people can see them as well.	participation in scene, Shared Gaze, Embedded Values
I remember about being theparticipant and the creator.And I wasthe creator after being the person,so Ihad in mind like it felt a little weirdto be the subject because you knewsomething was being done to you but youdidn't know 'What' and you wouldn't know, it beats until, you know, the sculptor wasdone	subject of gaze, participation in scene, active-adaptive, expansive
I kinda had that in mind and it was, you know, likethatlimited mystery, I guess, which was intriguing; that's not somethingthat I experienced before.	Augmented reality, AR affordance
ostly curious. I'm not sure how Ifeel if I wasn't familiar with theproject but I was always interested tosee what was going on.Because normally, if someone-- like the sculpting example, itwas like before you could tell exactlywhat was being done with you and after about using AR, it wasn't as clear.So it just likea mystery and is fun to try to guesswhat they were doing.	subject of gaze, passive-adaptive, immersive
Also for the,'Ifeel safe when,' the card that we chose tobe our inspiration when we're doing itas a group, um… was basically just liketalking about the comfort in, like havinga meal, and… so, you know, just imaginedwhat was, like what did I associate withhaving a meal.So, you know,its tablefood obviously; it's like [Inaudible 05:59] that sort of thing--	Reflective of existing material
Um… just kind of like the basic idea of whatmakes a meal a meal.So I guess you couldsay that comes from my own life or justget a general cultural idea of thesethings.	Reflective of culture
lot of them were reallyvaguely worded so that was not helpfulbut then there were some that werereally specific and I think those werereally interesting and you know inspiredme to think a little bit more about it, because a lot of them were just likebeing with friends, being a group butthen, you know one of the ones that Iread was just like 'Eating my mom's applepie,' or something and it was just likethe ones that were like that felt reallypersonal and more relatable, even thoughthey were more specific and notnecessarily like part of my own life.	Reflective of existing material
n, we didn't have that much time, soI wanted one that was interesting butthen also not just like being withfriends or being around people, it wasalso something that was more clear thanyou're going to portray it.	Reflective of existing material, Bad usability
think it definitely encourages youto be more critical, especially whenyou're creating at the same time thatyou're with other people because I mean a lot of the time people, when they're making experiences or youknow any kind of content, it's isolatedand maybe, you know,	Embedded Values, participation in scene

you're with yourdevelopment team or whatever, and you'renot up front with someone else and seehow they react to the way that you shapethings.	
ally liked theactivity where we went you know acrossthe room spacing ourselves based onwhere we felt we were with certainopinions and I liked having you knowthat instant visual visualization,you know, where everyone was and how they feltabout certain things.So I think as likea participatory creative process, thatone was really interesting	Successful Expression, participation in scene, active-adaptive, expansive, generative exploration
The other ones — I think itall had to do with the fact that youcould make something live and theninstantly see the result, and you know it was as high quality as like, you know, like making something [Inaudible 13:03] you knowpre-made, but ah… it….So…. engaging and I thinkfor all parties involved and personal. Like you could make something differentevery time if you wanted to.	Good usability, Aura, Great Quotes, active-adaptive
Um… Ifelt like they were… just kind of like um… clichéd almost. Um… they were definitelyrepresentative and emotional. Um… but I thinklike part of that just like trying tointerpret someone else's vision withjust using other people's bodies andthat sort of thing which is hard tovisualize	Good usability, Failed Expression
that that was definitelysomething that changed with AR. Um… I think it could potentially change alot more with theadvancements of AR technologyand being able to create more realisticscenes on the fly.But… it definitely-- Ifelt like had a balance between, you know, a movie where there's like a clear point that someone trying to get across andthen now the sculpting kind ofexperiencewhereyou're just trying to say something andthen it's up to everyone else to getwhat they want out of it. I felt like itwas in between that because there weresome objects — the digital objects that werereally set with like intention and thenthe physical objects that the people who were-- some of the time it wasdefinitely more concrete and then someof the time, it was more abstract.	Successful Expression, AR affordance, active-adaptive, expansive
for me, it was almost 50/50because it was creating a scene of twopeople sitting down for a meal and youknow there were two actual peoplesitting in two actual chairs but then itwas a digital table that was set withdigital items and then digital food, so it was likedistinctly separated but overall, 50/50between physical and AR.	Augmented reality, Physical Reality, active-adaptive, immersive
hat was one of the things thatI was thinking about the most while it wasgoing on just because it was notexperience you were ever really happywith anything else. I mean any theater-- you can imagine things but you're-you'rekind of-- its implied what it's supposedto be and in this way, it was completelyabstract, and you had no idea what wasgoing on around you which was a reallyinteresting interaction.It's kind oflike off-putting at first and then justintriguing, I guess.	subject of gaze, no participation in scene, passive-adaptive
Kind of just being vulnerable I guess, just like youknow someone could do whatever theywanted, you know I didn't expectthat to be happening hit over there but… you know, if it was some random person thatI had never interacted with before, theycould just be making fun of me orsomething like that — not that I expected; it's just like that's something thatcould happen because you can't seewhat's going on. I think that's just likethe natural apprehension or [Inaudible 19:03] just the caution and the anxiety that wefeel as human beings. I was inenvironment where I felt pretty safe so I just started getting really curiousabout what was going.	subject of gaze, no participation in scene, passive-adaptive
did not know where the people were placed	Failed Expression
d not need more than one person to create the scene	AR affordance
making the characters sit down and talk	AR affordance

making the characters sit down and talk	optical scenography
AR people could not go between chairs and tables.	Failed Expression
They were always on top of the table.	Failed Expression
The sitting and talking characters	Successful Expression
Wanted to draw a plate with food but it was drawn on the floor and couldn't be moved	Bad usability
Wanted to draw a plate with food but it was drawn on the floor	finger tip rays
Without AR, the person was alone and not safe. However, with AR, the person only symbolically feels safe	Aura
Without AR, the person was alone and not safe. However, with AR, the person only symbolically feels safe	optical scenography, immersive
he card said eating with friends but we ended up creating people eating and talking	Not reflective
he person was with friends	Reflective of existing material
After looking at the app, suddenly going back to reality looked really lonely	immersive
fter looking at the app, suddenly going back to reality looked really lonely	Aura
I felt like a model sitting on a table waiting for the painter to finish their masterpiece	Shared Gaze, subject of gaze, participation in scene
I felt like a model sitting on a table waiting for the painter to finish their masterpiece.	passive-adaptive, immersive
t allowed me to be more creative by drawing and placing props.	active-adaptive
allowed me to be more creative by drawing and placing props	Successful Expression, AR affordance
by drawing and placing props.	optical scenography, finger tip rays
signing with a special theme in mind	Embedded Values
echnical difficulties appeared like items disappearing	Bad usability
Used it to create a theme when drawing and playing with objects	Embedded Values
Used it to create a theme when drawing and playing with objects	immersive
when drawing and playing with objects	finger tip rays, optical scenography

The use of props and drawings allowed us to get more creative and represent our scene visually.	active-adaptive
props and drawings allowed us to get more creative and represent our scene visually	Successful Expression, AR affordance
props and drawings allowed us to get more creative and represent our scene visually	optical scenography, finger tip rays
We drew food so that it made the scene more visually appealing	immersive
We drew food so that it made the scene more visually appealing	active-adaptive
drew food so that it made the scene more visually appealing	Reflective of existing material
Allowed me to have a blank 3D canvas which I could add relevant items onto.	Augmented reality, AR affordance
Allowed me to have a blank 3D canvas which I could add relevant items onto.	immersive, active-adaptive
Allowed me to work together to build our food scene	active-adaptive
Placement of objects	active-adaptive, expansive
Placement of objects	optical scenography
Sitting in the chairs around a dinner table	Reflective of Physical Environment
itting in the chairs around a dinner table.	Reflective of existing material
e had to be aware of our surroundings more.	Reflective of Physical Environment
It was easier to create than expected	Good usability, Successful Expression
it was interesting. I have used virtual reality even before. So I guess the application translated smoothly into AR. So it was pretty easy to pick up and definitely fun to use.	Good usability
robably just adding to an existing physical environment using augmented reality. So being able to draw in a physical environment where I wouldn't expect to be able to do that before.	AR affordance, finger tip rays, active-adaptive
So during the exercise we had to do where we had to I guess sculpt another person and then use the application on top of that to like sort of draw on top of our sculpture. It was I guess interesting to see how my thought process first started with AR	Augmented reality, active-adaptive, finger tip rays

'I feel safe when' and I was trying to think of ways in which I could utilize AR rather than say my first thought of when I'm feeling safe. So for example the first thing I thought of was drawing a book. So then afterwards I sculpted I guess the person in front of me and to have his arms placed out so that I could then use the application to draw a book in his hands. So AR was the first thought there.	Successful Expression, finger tip rays, active-adaptive
It was the first thought was related to AR and in which like what objects I could draw in the environment.	Successful Expression, active-adaptive, finger tip rays
guess it was more putting myself in this... in whoever I was sculpting shoes and just trying to augment that person's his physical body in the way that I would act rather than what I would want to draw.	participation in scene, Embedded Values, Reflective of Physical Environment, finger tip rays, active-adaptive
we decided that the like scene we were creating was going to be one which we were eating. So then the table was then the afterthought in which it like would help I guess bring to life a scene in which someone is eating. So instead of him just standing, eating, stay in front of a food truck or something we then brought in a physical prop is in a chair and then placed a table in front of them in AR to create like a sort of dining table scene	Embedded Values, participation in scene, Reflective of Physical Environment, optical scenography, active-adaptive
Okay. Um, I'm trying to think. I don't know that augmented reality was where in the group exercise when we were determining that 'I feel safe when' concept. I don't think AR was came into question. We were deciding like which scene to create. But then afterwards once we decided which one our group could relate to most then AR was as helpful in I guess creating a scene. I guess a relation to the 'I feel safe' one was the first.	Reflective of existing material
Yeah I mean it allowed us to put ourselves in the in the shoes or in the situation in the environment so to speak.	participation in scene, Embedded Values, immersive
I guess given the like physical environment and what we had to work with definitely the AR rather than the traditional.	AR affordance, Reflective of existing material
Yeah. It just gives you a lot more access to I guess creativity.	Good usability
Yeah the other one was I feel... I think it was I feel safe when people are genuine to me or they're honest and so that is like a personality trait that could be hard to accomplish in I guess AR.	Not reflective
lright! I think the first activity. It definitely improved it because I guess someone who it's hard to see how other people are thinking when we're picking a poll or like which side to go on. I'm more thinking about myself and not necessarily trying to I guess go where the majority of people are going. So afterwards when we step back and can see. I guess where people stand on each topic or each decision it was interesting to see how many people I guess weren't necessarily indecisive and that they could choose a side and not weren't just in the middle. If we'd saw a lot of the lines just clustered in the center and I guess that would show how indecisive as a group we were but it was a it was definitely need to see how many people were able to pick a side there.	Successful Expression, Good usability, AR affordance, participation in scene, Shared Gaze, active-adaptive, generative exploration

I would say the second game just because as someone who... it's kind of hard to visualize abstract ideas in the previous weeks when people would kind of molds their sculpture. I guess everyone to me I would see things differently than other people. So as-- as the artist maybe they had a hard or at least to me I had a hard time seeing what they were trying to convey whereas with the augmented reality it was much easier to be able to see what other people were trying to convey the other artists.	AR affordance, active-adaptive
Oh for sure. It aided communication and it made it less like the interpretation was a lot easier.	Successful Expression
n the first group activity it was definitely on the VR,, AR, MR side. The second direction was somewhere in the middle leaning towards physical in which AR just aided that like physical aspect and then I would say that with the third activity it was in the middle leaning towards VR, XR in which without the props and everything that we use to create like an environment so to speak rather than a single sculpture that environments kind of hard to vision or bring the life without the AR MR. So it's definitely leaning more towards AR VR there.	Augmented reality, Physical Reality, optical scenography, active-adaptive
So, during the second group activity when I guess I was being drawn on. There was art AR being placed around me. It felt a little uncomfortable to be honest just because I wasn't exactly sure what was being drawn around me whereas in the third exercise I wasn't really uncomfortable because I felt more like-- like we had a team sort of experience and instead I was more curious because I wasn't able to see what was being drawn around me and I really wanted to. So then when we switched spots. It really was invigorating nice to see what-- what had been drawn around me.	subject of gaze, no participation in scene, active-adaptive
Uh, probably at two. It was-- it was very intuitive. There were just a couple buttons that that I didn't know existed until someone else pointed them out to me. I hadn't even bothered trying to use them so, yeah definitely easy.	Good usability
I felt curious and intrigued about what they were doing. AR was in front of me.	passive-adaptive, expansive
felt curious and intrigued about what they were doing. AR was in front of me	Shared Gaze, subject of gaze, Physical Reality
Using AR gave me more power to display my creative thoughts and helped me express them	Successful Expression, active-adaptive
We were displaying dinner and the table props fit perfectly in our dark setting	Reflective of Physical Environment, AR affordance, Successful Expression, active-adaptive, immersive, optical scenography
drawings of food were not properly scaled	Failed Expression
Our card was “I feel safe when I am eating food I love” We used AR to help draw a dinner scene with tables and food.	Successful Expression, Reflective of existing material, active-adaptive, expansive

AR helped translate out ideas of a dinner onto an open space	AR affordance, immersive, active-adaptive, optical scenography
helped translate out ideas of a dinner onto an open space	Successful Expression
Being able to draw what was on my mind was a tool regular props don't have	AR affordance, Successful Expression, Good usability, finger tip rays, active-adaptive
We brainstormed what idea come to our mind	Shared Gaze, participation in scene, active-adaptive, expansive
We were debating between what kind of meals to portray. We chose the practical ones that we could draw like apples, pizza, and cake	Shared Gaze, AR affordance, Successful Expression, Good usability, Embedded Values, participation in scene, active-adaptive, expansive
We chose the practical ones that we could draw like apples, pizza, and cake	finger tip rays, active-adaptive, immersive
Table with food was a valid depiction of dinner	Reflective of existing material, optical scenography
We roleplayed eating food and enjoying it while using AR to help enhance it	Successful Expression, optical scenography, immersive, active-adaptive
It feelsnatural because I have physical objectsthere to kind of guide my creation, soonce I have a person there, it feelsnatural to add more person around themand pretending that they are having aconversation.So yeah, with a physicalankle there,augmented reality creation feels very natural.	Successful Expression, Good usability, Physical Reality, active-adaptive, immersive
I think creating AR is heavily influenced by theenvironment.	Reflective of Physical Environment
You create like depending onwhat's around you if there's a personstanding there, you create things around them. And if there's the same, let's say, a chair here, you would be like you know posting onthe chair or around the chair so it'svery heavily dependent on theenvironment.	Reflective of Physical Environment, active-adaptive, immersive, optical scenography

Well, we created ascene based on the car where we have theother campus safety card and whatever was on that card, we just recruited that. Soour card was saying that they need morefriend could feel safe.So we just put in more augmented reality people around the real person.	Reflective of existing material, optical scenography, active-adaptive
h well, with thetraditional process, there's only so muchyou can do, like it has to be veryabstract in the traditional process.Thepose you've created sometimes cannot beeasily interpreted by other people. Like in augmented reality, I feellike its more literal, like I canliterally put [Inaudible 03:01] people around the real person, andit's very easy to identify once you havea phone and point where's the thing. And yeah, Ithink it makes me make a scene that'smore literal rather than abstract in augmented reality.	Reflective of existing material
Like in augmented reality, I feellike its more literal, like I canliterally put [Inaudible 03:01] people around the real person, andit's very easy to identify once you havea phone and point where's the thing. And yeah, Ithink it makes me make a scene that'smore literal rather than abstract in augmented reality	active-adaptive, immersive, optical scenography
Yeah, I think augmented reality enabled me to create a perfect-- but whatever is on mymind, like it's a perfect recreation of my mind.	Reflective of existing material, active-adaptive
n augmented reality, I don'thave to do that; I can make you make your normal pose when you're talking andthen just add more people around you andonce you point your phone towards thething, it's very obvious that you'retalking to people. I don't haveto do all the extra things	Reflective of existing material, AR affordance, active-adaptive, optical scenography
ecause we have like, I think, fairly highfidelity props like they'd look likeperson rather than you know animationsor, you know, all the, you know, weird cartoons whatever;itshigh fidelity props over there and with animations implemented. So it feels natural to me that I want to create a real theme that exist in thereal world.	AR affordance, Physical Reality, optical scenography, active-adaptive, immersive
think it helped me realizethat I'm not a, you know, one dimensional thing, [Inaudible 06:28] person, I can't-- like my interest has a wide range, and everybody else's interest — it's allover the place too; you can see by thelines on the floor; I think it helps with visualize that.	Shared Gaze, participation in scene, Successful Expression
Yeah.Because you know when you'rewalking around, I don't really payattention to a certain person.So whenI'm done walking, I don't really knowwhere they are being but with the AR, I can tell by the lines on the floorthat they have being you know everywhereand everybody is being everywhere.	Shared Gaze, participation in scene, active-adaptive, immersive, finger tip rays, generative exploration
ls moreauthentic than you are more than yourother people, when are putting out propsaround other people, it feels veryauthentic because you're creating a scene that youcan see.But when you are being theprops, it feels kind of weird that peopleare sculpting you but you don't-you don't feel it; you don't see the props around you; you're wondering what they are doing. But in the traditional method whenthey are sculpting you, you can feel itand you can kind of tell what they are doing, so there's a difference ofperspective whether you have prop oryou're the creator.	subject of gaze, participation in scene, Reflective of existing material, Successful Expression, optical scenography, Good usability
In the middle butit's leaning towards physical one.	Physical Reality

as I said, I tend to create it more realistic, more literal scenebecause the props are so high fidelity, andso I tend to create a scene that existin real world.	Reflective of Physical Environment, Reflective of culture, optical scenography, passive-adaptive, immersive
at first I found it quite challenging not because of the UX. Everything seems fine in design but the technology like a technical issues that I came across with. Those are the issues that can be resolved better but I found it an overall like I found it quite engaging to create virtual objects using that application	Good usability, Failed Expression
It was engaging because the way that I have a bunch of options I can choose from UI. I wanted to create like I want to put on circular cone or take with any object given in the list options and I can also like click different portal locations to move around. So it kind of gives me a good variety of like options to choose from and be more creative.	Successful Expression, Good usability, AR affordance, active-adaptive, optical scenography
I found it easy to do that because I can easily just place any object I want to like that I am thinking in my head and then just-- just by clicking several choices like options and buttons and was able to easily just place my... place virtual objects and then express my thinking process when I want to express through the virtual objects.	Successful Expression, active-adaptive, optical scenography
So, it's just like it comes naturally because like if I want express like somebody is happy or angry I would just express through by drawing a line like with different colors like if the person is angry and I will just draw some like strong like aggressive color and the line is more like rough. But if the person is happy I would just choose more like bright like vibrant color and just draw on around the person.	Successful Expression, AR affordance
So I... my group and I were just going through the list of 'I feel safe' words together and then we found something that we're coming to choose from and then we started by-- we started off why was it. For example our group chose the 'I feel safe when I am with' like you know somebody we know and... and the question that you're asking is how-- how would I go about?	active-adaptive, expansive
with this application I felt more confident in visual... visualizing the, like the emotion and how the person's going to by placing different colors and moreover because it's virtual reality I can also have somebody in that scene like a sculpture and like I was able to like you know, by with my good members to put different objects and make the like environment more vibrant and engaging even though it's happening in the virtual application because we were able to see from that application the screen.	Successful Expression, Good usability, AR affordance, Augmented reality, active-adaptive, optical scenography, finger tip rays
like thought of all placing a person in the middle of that room where, looks like there many people around so that the person doesn't feel lonely. Yeah.	optical scenography, active-adaptive, immersive
like thought of all placing a person in the middle of that room where, looks like there many people around so that the person doesn't feel lonely. Yeah.	passive-adaptive
So what are the aspects to be more critical in creating this scene virtual reality? Yes because I had like predefined options, a list of questions from 3d-- 3d shapes, to make like lines my placing as a different animation or like having an option to choose multiple places to change the scene. I had to be more critical in choosing which virtual object to place or to start from	AR affordance, Good usability, Reflective of existing material

because once I changed like object, once I place object I know easy to remove but then it's gonna need to different... was a different result.	
Different interpretation yeah. I've to be more cautious and I thought well in that way the more critical and choosing which object to go.	Successful Expression, AR affordance, Reflective of existing material
So for those involved with you know moving from one place to another and happening in like real like word.	Physical Reality
So for those involved with you know moving from one place to another and happening in like real like word.	generative exploration
I found that the reality application the-- the AR app kind of enable our good to be more creative in displaying like representing our thoughts, our ideas to that scene after that mobile application.	Successful Expression
Authentic wise, I felt because that was my... our group was not entirely [inaudible 0:12:20] to handle this application because we don't have much experience like using application or what. So because of that our inexperience, I felt that it was hard to... how-- how should I say this so authentic one? Okay. We were able to really given the ability to express in virtual world which is great but then authentic wise I built due to the good collaboration and then given the time constraint I felt that some of my equipment whereas like chose just anything like any color of this object to make it more kinda try to make it more engaging.	AR affordance, Not reflective, participation in scene
Yeah like I guess beforehand but before placing like brainstorming ideas before jumping on to the creating the scene.	participation in scene
Yeah like I guess beforehand but before placing like brainstorming ideas before jumping on to the creating the scene.	Embedded Values
From the scale of-- scale from VR to physical, I found that it's quite mixed in twin but it kind of leans more towards VR scale I found	Augmented Reality
the reason why I felt that was because our group members displace the bunch of VR objects and that kind of made the-- the whole screen hard to like-- like the screen size was not big enough to depict the entire virtual objects place in that scene. So I found that while doing that activity the objects were doming but then it can't decreases—it can't decrease the physical presence.	Reflective of Physical Environment, Augmented Reality, optical scenography, active-adaptive
First, for example the second activity couldn't use the AR app with me like when the other people were answering ouestion by looking around I was just answering in my head. I felt it was okay because it's still... I was... I still felt that I was participating as a group after all when I was in the visualization of other member's movement. Even-- even though I wasn't using that AR app, I was able to fully engage in the scene because of that visual representation of the good and bad like all the people.	subject of gaze, active-adaptive
I was like I don't know what they were building. I don't know if we get impulsive line or it was a different object that they're placing. I found it hard to understand at first. I was just moving around to answer questions and after all seeing that scene I found that all the—the activity VRs were building that the entire scene. So I found that the this AR even-- even though I wasn't in the-- I wasn't participating in the scene I found like it's easy to-- easy for me to understand and be in that scene by looking just by looking at the visualization.	Successful Expression, subject of gaze, no participation in scene
Participant 3	

I felt left out in the group activity	Shared Gaze, subject of gaze, no participation in scene, passive-adaptive
I gained more creativity	Successful Expression
I gained more creativity in creating my own scene.	active-adaptive
I gained more creativity in creating my own scene.	finger tip rays
our group carefully chose the right set of props, characters, and so on.	Successful Expression, expansive, active-adaptive, optical scenography
Too much movement of characters	Bad usability
We utilized AR to reflect the emotions and feelings of the participants' writing	Reflective of existing material, active-adaptive, expansive
So that one group can share this scene with other groups.	Shared Gaze, participation in scene, active-adaptive, immersive
When our group used different lines with vibrant colors to represent peaceful and safe,moments. Those effects are more effective in expressing feeling than 3D sculptures.	Successful Expression, finger tip rays
I felt that creativity comes through the collaboration.	Embedded Values
creativity comes through the collaboration	Shared Gaze, participation in scene, Embedded Values, active-adaptive, Successful Expression
I became more adventurous in deciding which color to draw and which sculpture	Successful Expression
since the setting was in 3D	AR affordance, active-adaptive, immersive, optical scenography, finger tip rays
Our group had a chance to put vibrant lines and characters in the scene	Shared Gaze, participation in scene, active-adaptive, immersive, optical

	scenography, finger tip rays
Since we went a little bit farther in being creative by utilizing too many resources, the scene might not be accurate, or entirely describe the scene, or dramatically decorated	Not reflective
mobile app can be a great medium to reflect different emotions	Reflective of culture
mobile app can be a great medium to reflect different emotions	Reflective of existing material
mobile app can be a great medium to reflect different emotions	AR affordance
learned how other groups were involved in expressing their ideas	Successful Expression
AR was around me in those moments	Aura, Augmented reality, immersive, passive-adaptive, subject of gaze, no participation in scene
enhance the scene. Gave the scene more meaning and value	AR affordance, Myth of Objective Inscription, Successful Expression, immersive, active-adaptive
Using the AR in reference to the real objects around them, i.e. putting a person sitting down on an actual chair	Reflective of Physical Environment, active-adaptive, immersive, optical scenography, Physical Reality
Animations and objects go through real life objects unrealistically	Not reflective, Bad usability
In regard to the card, I tried to make the scene as relevant as possible	Reflective of existing material
I tried to make the scene as relevant as possible	active-adaptive
I built the scene that came to the mind when I first saw the card	Reflective of existing material, active-adaptive
Making an AR object interact with a real object	Reflective of Physical Environment, active-adaptive, immersive, optical scenography
I visualized a scene and attempted to recreate it.	Successful Expression,

	expansive, active-adaptive
Worked with what other people were placing down in the scene	Embedded Values, expansive, active-adaptive
Not many. The thought processes were very similar	Shared Gaze, Embedded Values, participation in scene
Sort of. Some AR placed on the table, as well as the chairs and tables.	Reflective of existing material, immersive, optical scenography
We were able to visualize scenes instead of just talking about them	AR affordance, optical scenography, immersive
Everyone has similar ideas of when and how they perceive it.	Shared Gaze, participation in scene, Embedded Values
felt vulnerable, they were doing something to me but I couldn't tell what	Shared Gaze, subject of gaze, no participation in scene, passive-adaptive
I felt more aware of 3D space than usual	AR affordance, immersive
When they marched the color, lighting, mood of the room, etc.	Good usability
When they marched the color, lighting, mood of the room, etc.	Reflective of Physical Environment
When they were poorly lit, geometrically awkward, or didn't have the correct depth/ placement	Not reflective of physical environment
thought more about the mood of the objects and how they interacted with each other	Successful Expression
I pulled ideas from the "I Feel Safe When" responses. I created an AR scene around a digital people w with two people around it.	Reflective of existing material, active-adaptive, expansive, immersive
It felt interesting to have real people positioned around a non-physical scene.	AR affordance, optical scenography
It was also convenient to have physical props.	Reflective of Physical Environment, optical scenography
aving an AR table was good for a set because it was easier to move and manipulate than a physical prop	Successful Expression, AR

	affordance, active-adaptive
AR table was good for a set because it was easier to move and manipulate	Augmented Reality
how I place physical and digital objects in relation to each other	Objects in Scene Domain, optical scenography, active-adaptive
I talked a little with my partner about what food to choose and how to orient people	Augmented Reality, Shared Gaze, Embedded Values, Successful Expression, participation in scene, expansive, active-adaptive, optical scenography
As a group we focused more on descriptive content and the position of things.	Embedded Values, optical scenography, active-adaptive, immersive
it was laid ou	AR affordance, active-adaptive
t made it a bit difficult to understand and make connections	Failed Expression
It seemed relatable but at the same time distant.	Aura, immersive, active-adaptive
I didn't "learn" anything in particular, but it definitely felt a little surreal	Not reflective
I couldn't know what was going on in the AR so I ckind of felt left out	Shared Gaze, subject of gaze, no participation in scene
gives a unique ability to perfectly integrate your imagination or idea into reality	Successful Expression
ntegrate your imagination or idea into reality	Embedded Values, AR affordance
designing with a special theme in mind.	Embedded Values
I couldn't place props behind my partners	Bad usability
t always stayed in front of them even when I didn't want them to be.	Failed Expression
By using props or drawing, we were able to visualize what the IFSW card said	Reflective of existing material
By using props or drawing, we were able to visualize what the IFSW card said	finger tip rays, optical scenography

we were able to visualize what the IFSW card said	active-adaptive
he card we selected had “materials” that made the person feel safe. Our card said, “I Feel safe when I eat” so that’s why we made a drawing of food	Reflective of existing material, Successful Expression
we selected had “materials” that made the person feel safe	expansive
we made a drawing of food	active-adaptive
I worked with my partners ro sculpt and decorate the scene.	Shared Gaze, participation in scene, Successful Expression
I worked with my partners ro sculpt and decorate the scene.	expansive
AR experience made me feel like I was in art class	Good usability
wouldn’t think of the AR as a valid representation of the original event	Not reflective
I couldn’t place props where I wanted them to be so things looked kind of awkward.	Failed Expression, Bad usability
I felt a bit lost. I did not know how to place my arms, legs, etc, in relation to the AR object. I was being “sculpted”	Shared Gaze, no participation in scene, subject of gaze, optical scenography, immersive, passive-adaptive
I was being “sculpted”	Reflective of Physical Environment
t was more hands on and you were able to see the results quicke	Successful Expression, AR affordance, finger tip rays
The realistic characters played a role.	Reflective of culture
The realistic characters played a role. The ability to change the textures of the AR props.	optical scenography
he ability to change the textures of the AR props.	AR affordance
The lack of the ability to “snap” the characters to the ground. Sometimes they appeared to float.	Failed Expression
We mainly used the drawing tool to draw the “I Feel Safe When” scenario	AR affordance, finger tip rays, active-adaptive
To more easily visualize the material	Reflective of existing material, optical scenography

ith AR you can use props and cgaracters that are difficult to attain using the traditional mode	optical scenography
I put myself in the situation and draw the scenario	Embedded Values
he situation and draw the scenario	active-adaptive
We gathered input and started drawing individually	Shared Gaze, Successful Expression, participation in scene, Embedded Values, expansive, active-adaptive, finger tip rays
Most of the time our ideas overlapped	Percieved as true by group
We drew on one person individually and most of our ideas overlapped so we voiced our thoughts when that happened	Great Quotes, Shared Gaze, Percieved as true by group, Embedded Values, participation in scene, finger tip rays, expansive
e portrayed the material as accurately as we could	Reflective of existing material, immersive, optical scenography
It seems like people finds safety/ feel safe in similar situations	Percieved as true by group
It was a differentexperience.It was-- or just likeexpressing yourself in general.It was-- itmade it easier to, I guess, like toexpress ideas I couldn't do physicallyin the real world.	Physical Reality, Successful Expression, Good usability, active-adaptive
so for examplewhatever the scenes we had to depict likea dinner at dinner scene.So in thetraditional mode, I guess we would justlike choose table and whatever objectswe could find around it.But now sincewe're using AR, I could-- we had a table but I could add things thatmaybe I wouldn't be able to find in likea regular environment, and plus I wasable to make modifications, so such aslike exaggerate things.For example, if Iwant to exaggerate a plate or a dish, Ican make it bigger than it usuallywould so I could show emphasis on that idea.	Successful Expression, AR affordance, active-adaptive, optical scenography
I guess, the props, theonly one that biggest made sense to us wasthe table for like a dinner scene andbesides that, we just used that paintbrush to portray the other items or props we needed.So the thoughtprocess behind that was we thought aboutwhat ideas when we think about eating, what environments are we usually in andthen what props would we need.So thatwas kind of like the thought processbetween choosing what pops to use.	Reflective of existing material, Embedded Values, Reflective of culture, finger tip rays, active-adaptive
Forlike using AR, we could kind of depictthings, depict-- because like when you feel safe, it just doesn't have to be a physicalobject, it can be like an action you door like a feeling you feel.And I feellike depicting, I guess, feelings isharder using just physical object butthrough	Embedded Values, Reflective of existing material, Successful Expression, optical

using AR, it made it a littleeasier because we could draw maybe not-- like we could draw like images orpictures that I guess resembled ourimagination	scenography, active-adaptive, finger tip rays
Yeah-yeah, definitely. Because our card was 'I feel safe whenI'm eatingthings that I love.'And I feel like yeah, we're able to depict a scene even thoughit didn't last that long, we wereable to showlike a dinner table with differentvarious items which I think is arealistic depiction of someone having ameal they enjoy.	Percieved as true by group, Reflective of existing material, active-adaptive, immersive, optical scenography
I guess-- so for physical, we had to kindof limit the ideas we thought of, we had it like thinkingof — can werealistically show this like AR,we could show-- we could show scenes thatmaybe we might not have the physicalobject around us but we're able to drawit or find props in the AR environmentthat we could use.So-so I feel, like inthe physical sense, we had to be I guessmore critical and what ideas we chose toselect from, and AR — we had more creativity to choose.	Augmented reality, active-adaptive
It definitelyimproved the creative process because ifyou can imagine it and I guess kind of draw it, you can portrayyour ideas in AR; and AR has a wholebunch of tools, it doesn't have to bedrawing.If you can think of a prop thatthere's a similar shaped in AR, which youcan portray then I feel like yeah, AR definitely enhances it by bringingitems and objects that you might nothave physically,and that mightnot even fit physically in thedepartment that you're in,AR is able toplace it there.	Successful Expression
It definitelyimproved the creative process because ifyou can imagine it and I guess kind of draw it, you can portrayyour ideas in AR; and AR has a wholebunch of tools, it doesn't have to bedrawing.	finger tip rays, active-adaptive, Good usability
f you can think of a prop thatthere's a similar shaped in AR, which youcan portray then I feel like yeah, AR definitely enhances it by bringingitems and objects that you might nothave physically,and that mightnot even fit physically in thedepartment that you're in,AR is able toplace it there.	immersive, active-adaptive, optical scenography, Good usability
would say augmentedreality because the physical scenes youkind of had it infer with whatwe're talking about; there weren't thatclear-cut.A lot-- a lot of stuff-- yeah, sosomeone probably didn't even know whatwe're doing and then just walked by andsaw like I guess our positions and place, I'm not sure if they'll definitely beable to guess what we're trying to portray. But augmented reality — we have the toolsthere in place where we can-- we can-- wecan-- we can easily show what we'retrying to depict because you can eitherdraw it or find props that are there.SoI feel like augmented reality, we're able-- we have more tools accessible toeasily to better depict what we'retrying to show.	Good usability, Successful Expression, optical scenography, active-adaptive
Well, some of the games I liked — I had watched, I didn't participate in; but let metry to um… yeah, because I kind of didn'tsee like I just thought like their linesthat were drawn; I didn't see the pointbut I guess yeah, because I don't one ofthem you just either;we either choosethe side to choose on.Then I liked whatyou said about — through scene AR, you can see your lines goingback and forth, which to me, it meant alot because it shows that sometimes youalso aren't able to classify people injust one box, which those lines showedbecause people are constantly moving.Yeah.	no participation in scene
I would saymajority in augmented reality.	Augmented reality
Oh more curious andyeah, more curious about what was going onaround me. Just wondering what was being created.	no participation in scene, subject of gaze, passive-adaptive

No relation and made me very curious to know what was being built in the environment around me	Shared Gaze, no participation in scene, subject of gaze, passive-adaptive, immersive
It was easier to create the objects than the traditional mode	Successful Expression, active-adaptive, immersive
much harder to place those objects spatially in the environment	Bad usability
The group members that were integrated into the scene	Reflective of Physical Environment, active-adaptive
When you walk around and the 3D objects aren't connected to the physical objects and appear to be floating	Failed Expression
Based the AR on the documentary material for inspiration	Reflective of existing material, expansive
acing objects such as humans is possible in AR whereas you cant create or control people traditionally	AR affordance, active-adaptive, immersive, optical scenography
After though looked at the physical environment to help uniting the objects.	Reflective of Physical Environment, active-adaptive, immersive
We all brainstorm and pitch ideas before collecting coming to a decision. Then two people built while two other provided help in the physical space with props	Embedded Values, Shared Gaze, participation in scene, active-adaptive, expansive
Which objects to create	active-adaptive
The table object we placed using the database of objects	Reflective of existing material
provided insight on my fellow colleagues' thoughts	Embedded Values, Shared Gaze, participation in scene
People can become insecure roleplaying with AR because of the unknown and lack of control	Shared Gaze, subject of gaze, Failed Expression
Participant 12	
I felt curious not knowing what they were doing . I have no sense of the AR space	Shared Gaze, Scene Domain, subject of gaze, no participation

	in scene, passive-adaptive
Mobile AR feels easy and natura	Good usability
hey have to make sense in the scene in regards to themes of safety	Reflective of existing material
When they appeared to be floating or around or didn't make sense to the story.	Failed Expression
I made an AR scene according to the text on the "I feel safe" card. The card says they feel safe with friends so I put people in the AR scene	Reflective of existing material, active-adaptive
You have access to a lot of props that may be impossible to access in real life	Successful Expression, AR affordance, active-adaptive, expansive, optical scenography
I only think about building a scene that makes sense in regards to the IFSW card	Reflective of existing material, active-adaptive
e build to complement each other's work	Shared Gaze, Expression, Embedded Values, participation in scene
felt like the story that was presented on the IFSW card.	Reflective of existing material
t was easy to access and use thus I feel more propelled to create freely.	Good usability, Successful Expression
igh-fidelity visual understanding of the card	Reflective of existing material
I've been creating augmented reality because I didn't really feel the technology part of-- part of augmented reality. It came to me more as like artistic experience you know because we were using paint tools and we would just use the paint tools in everyday life when you upload Instagram posts and stuff but we don't think of that as like augmented reality. So it came to me more as like the artistic experience rather than technology experience you know.	Good usability, Successful Expression, Great Quotes, finger tip rays, active-adaptive, immersive
en I was like looking through the screen of the phone and putting some objects and drawing for like quite a long time when we were doing the exercise in class and when I viewed the reality outside of my phone I kind of became surprised because you know we put so many object in that screen and I was just watching the screen for a long time and then when I just looked at the reality it was different and then I kind of felt that emptiness you know.	Aura, AR affordance, immersive, active-adaptive, finger tip rays
we put so many object in that screen and I was just watching the screen for a long time and then when I just looked at the reality it was different and then I kind of felt that emptiness you know.	optical scenography, Augmented reality

hat was just a really interesting feeling that I got from the experience. Yes I wanted to mention that.	active-adaptive, immersive
going along with the first answer overall like it was a really like artistic experience to me because we were creating the reality but mostly in terms of like decorating, like drawing and things like th	Good usability
we were creating the reality but mostly in terms of like decorating, like drawing and things like that.	active-adaptive
So what that artistic experience I think bring more material to the exercises	optical scenography
hat artistic experience I think bring more material to the exercises you know because before we were mostly using the bodies and just humans but then now we could actually bring something else to the reality and yeah that's anything how I changed-- how I changed.	AR affordance
with the app I could just create the vibe of the emotion you know because what the colors and everything, the bright colors to create happiness and things like that it really just opens a lot door for me to explore more of the emotions	Successful Expression, AR affordance, finger tip rays, active-adaptive
for me I mostly as paint tool	finger tip rays, active-adaptive, Successful Expression, Good usability
or me I mostly as paint tool and one of the reason I did that was I kind of had a hard time putting the props you know we had to kind of click the prop and move it to certain ways but it's not like you can change the size quite you know enlarging the props and that and then like making it smaller but you actually have to like move the screen to make the size adjustment and also like putting the props	Bad usability, active-adaptive, optical scenography
So when I had to adjust things in 3-D environment that kind of was hard for me.	Bad usability
So I just mostly just paint tools to yeah change colors and draw something on i	finger tip rays, active-adaptive, Good usability, Successful Expression
I think just the idea of safety as kind of her too explore because there is no certain definition that fits to everyone you know and the card pictures was I feel safe when I'm around with other people but we didn't have any specifications on what environment or what are you doing with other people you know you're just spending with other people or you're like talking interacting with other people. So we just create it like a party scene where there's a lot of people are around.	Reflective of existing material
So we just create it like a party scene where there's a lot of people are around.	Successful Expression, active-adaptive
was... I don't... I'm not certain that it was authentic to me or that person who wrote the card because I wouldn't feel really safe when I end the party scene you know but I still created nothing because that person wrote that the person feel safe and there people around them. So for me 'I feel safe' when I'm along with or my best friend one friend but I don't feel safe when there are a lot of people. So, in terms of safety that environment... AR environment I	Not reflective

created were not authentic to me. Also for that person who wrote the card but there is no way I can know what he or she really meant so.	
I think I became more critical because those objects and the drawing doesn't look like the real object you know because and so there is this sense that it's not like in the environment like 100 percent in the environment even though we will perceive it as in that environment.	Not reflective, Great Quotes
So I became critical when I noticed that that's totally out of the place. Yeah.	optical scenography, active-adaptive, Failed Expression
I think other people did a better job on making the props fit in to that real environment. S	immersive, active-adaptive, optical scenography
er people did a better job on making the props fit in to that real environment. So one example is, I saw this bucket holding something and this bucket was really on [inaudible 0:11:34] but in my group we didn't really focus on putting the uptick in the bright place you know. So it was just kind of floating around. Also the people we made they were that you know the foot. I don't... I couldn't feel that their foot it actually on the ground.	Failed Expression, Bad usability
I couldn't feel that their foot it actually on the ground.	optical scenography, active-adaptive, Not reflective of physical environment
I became critical to my work when I saw how other people did it.	Successful Expression
never really thought that the augmented reality to go away and you create a process from us because I would perceive it as a more creative. Because it's a very like unique experience to be able to play with the reality by not touching the reality you know.	AR affordance, Augmented reality, Aura, active-adaptive, immersive
e creative way you know in a sense that you can like play with the reality without like doing anything to the reality.	AR affordance, active-adaptive, finger tip rays, optical scenography
Yes it was great that we could go back and see what we've created.	AR affordance
For example the first exercise with it, the going back and forth with the answers we could just see our lines again with our phone. Yeah.	AR affordance
I think a little bit more to the augmented reality part just because we didn't... we had like five props like people human props but then just one like real actor and also we didn't use any cures or anything in that environment. So it was just one person standing there and everything else was what being created it. So yeah-	Augmented reality, optical scenography, active-adaptive
So it was just one person standing there and everything else was what being created it.	passive-adaptive, immersive, optical scenography
I really like-- I really- really like this activity. [Laughs]	Good usability

It was... it's really interactive and it's... it was almost like- Oh you could draw and you could put props you could add like figures and stuff like. It felt like... this experience felt like I was in an arts class but then it was like beyond, it was like more than drawing on the canvas. So I would say was more exciting compared to other medium for creating stuff	AR affordance, Successful Expression, Good usability, active-adaptive, finger tip rays
So you could like perfectly completely integrate your reality into your imagination... your-- your imagination into your reality. So I think it was quicker to create something you were thinking. Because say if I was like painting and if I wanted to draws something that would that's still in reality but then with my imagination then you will have to draw both of them, right? But then in this case you already have your own reality. You can just add your imagination. So like for creating so I think it's quicker, it's easier, more accessible and since you can use props that's already in the app you don't have to be like super autistic to create your imagination. Yeah.	Good usability, Successful Expression, active-adaptive, finger tip rays, optical scenography
h it was like, so I could tell my partner's like putting stuff right. So even though I couldn't see what was next to me or behind me because I already know that there is stuff around me it was easier to like do that kind of performance technique.	Augmented reality, participation in scene, active-adaptive
Oh, there's stuff around me even though I can see it. It helped me to like sculpt myself in a way they wanted. So, it felt like I was in like a drama class	Successful Expression, active-adaptive
then if I didn't know that they were doing AR experience then you know I'm... okay so to explain. So my partners were like creating me having a conversation with friends. So they're putting like people figure in the AR experience and... but that I couldn't see-- I couldn't see the other people around me but at the fact that I knew they were like people around me in this AR real... AR. When my friend said "Act like you're talking" then I was like not as uncomfortable.	Shared Gaze, subject of gaze, participation in scene, optical scenography, active-adaptive
I knew that they were like stuff around me in reality. So what they would see then I would actually... I would look like I'm actually talking to other people they put. Yeah.	passive-adaptive, immersive, subject of gaze
I knew that they were like stuff around me in reality. So what they would see then I would actually... I would look like I'm actually talking to other people they put. Yeah.	passive-adaptive
So like 'I feel safe' when I'm eating-- when I'm eating an ice cream or something like that. Then you know it's much easier to deliver the message through this AR because you know you can just put an ice cream object but if it was... but the most of the customer saying that "I feel safe when I'm with friends" then all you do is just you know put... I don't know people and you don't necessarily have to have objects.	Successful Expression, AR affordance, active-adaptive, immersive
I think without AR it was harder like I said before with AR it was for me was easy-- easy to imagine because I knew that when they see me they have things around me. So I'm not completely doing like mine stuff [laughs] through their eyes so just knowing that it was easier to do the performance.	participation in scene, Embedded Values
So yeah, I would say wit AR it was much easier but at the same time I don't think AR can make like the best use out of it by using those 'I feel safe when' campaign because most of them were "I feel safe that I meet my friend, I'm my family".	Reflective of existing material
hrough like I would make that person to pose and at the same time I would add stuff around the person, right. But then I couldn't... it wasn't like completely free to put place props I wanted to add. So, we were trying to... we had this card saying 'I feel safe when I sleep'. So	Failed Expression, Bad usability, optical scenography

we wanted to put a sofa and then kind of make my partner act like she's lying or something like that. But then the sofa we were not able to place this over behind our partner. So it was like I think when... for this AR when a person's there it was hard to put props around. So it was kind of-- there was kind of a limitation for creating an event that the cut.	
I really... it was really... when I saw those lines when we were doing walking back and forth activity. When I saw those lines it kind of I don't know-- I don't know what I felt but then it just felt [crosstalk]. So it's hard to describe but then to seeing those different colors lines just kind of it effectively delivered that everybody's different because each color was different and then each color had different lines, different number of lines. So it was like a yeah a good representation of how unique we are.	Reflective of culture, Percieved as true by group, finger tip rays, generative exploration, active-adaptive
you remember what you read it like she put lines around like a cartoon. So it was like it was more powerful to deliver the message shows trying to say.	Reflective of existing material, Successful Expression, AR affordance, passive-adaptive, immersive
I would say both, the more in argument reality.	Augmented reality
we had to make Uri acting like she's eating... she's holding a spaghetti but then like without our drawing the spaghetti drawing she would look like she's not doing anything, right. So but then we would still have needed this reality to create augmented reality. So it exists in both realities but then more in augmented reality.	Augmented reality
It felt really weird right. It was like... I really felt like I was in a different place but at the same time I'm still in the same place because it's- it's- it's literally the same place but I don't know feels really- really weird after I did everything.	subject of gaze, Aura
I thought I was like living in the app.	subject of gaze, participation in scene, immersive, passive-adaptive, Aura
I went through it was really creating a scene from 'I feel safe'	active-adaptive, expansive
it was really creating a scene from 'I feel safe' one	Reflective of existing material
I was the first model for at the beginning and as the model everyone was trying to put people in put, some food in front of me but I myself felt nothing like I felt really alone.	Shared Gaze, no participation in scene, subject of gaze
I was the first model for at the beginning and as the model everyone was trying to put people in put, some food in front of me but I myself felt nothing like I felt reall	passive-adaptive
But then when I actually got the phone and then looked into the scene that they made it felt like more alive.	generative exploration
ut then when I actually got the phone and then looked into the scene that they made it felt like more alive	Shared Gaze, participation in scene, subject of gaze
when I actually got the phone and then looked into the scene that they made it felt like more alive	Aura

when I actually got the phone and then looked into the scene that they made it felt like more alive.	immersive, passive-adaptive
	Cumulative Identifiability Score
well there's a lot of like glitches in both that comes with AR	Bad usability
to combine reality and non-reality imaginary things at the moment was pretty interesting.	AR affordance, active-adaptive
to combine reality and non-reality imaginary things at the moment was pretty interesting	
lly when you're creating something that's not in real life it's either video that's already been taken or you can't really interact with it while you're creating it.	AR affordance
At first I didn't know how to... because like if you took a picture of it and then decided to draw people in the picture you can change as you know you can change everything about it but then and there's a real-life person sitting there and then I had my facial expression and it wasn't like... it was hard pretending to talk to someone that wasn't there though.	Failed Expression, passive-adaptive
he people that they try to put in it kind of reflected that because I wasn't actively engaging until they told me like where the people were	Augmented reality
eople because that's the prop was 'I feel safe' when eating with friends. So we had two items, friends, people and food.	Reflective of existing material, active-adaptive, expansive
INTERVIEWEE:	Great Quotes
I didn't really do a lot of participation. I was more the site models. So I'm not really sure how specific you can get.	subject of gaze, no participation in scene, passive-adaptive
uthoritative because the humans were able to... oh so like when we asked the humans to sit it actually did an animation where it was talking to someone and we didn't expect that but because of that it kind of brought the picture like on	Successful Expression, Reflective of existing material, AR affordance, optical scenography, immersive, active-adaptive
'm not so sure about the augmented reality part because there were so many stuff that were kind of. For example, if they looked at the scene in one area the people were sitting in the chairs correctly if you moved. Their legs were not in between the table and the chair or they looked smaller. So like those kind of things just kind of threw up the feel and then so you were kind of accustomed to it kind of looks like this. So like well its close enough but in the traditional sense it was... there wasn't much else to look at except for the people. So you had to get little things down correctly.	Successful Expression, Bad usability
So when you're sculpting someone you can specifically tell them to make this kind of expression and do this but then as a model for the AR experience no one actually thought to tell the person to act a certain way or that's how it was in my group and then so what I kind of mentioned earlier I didn't know how to act, I didn't know where to look at and talked to. So my facial expression was kind of just like dull. It wasn't like a feeling of happy being with	no participation in scene, Augmented reality

friends. It was kind of the opposite. So in that sense it kind of was kind of off but the different AR elements saved it but um yeah, so that's the difference.	
when you're sculpting someone you can specifically tell them to make this kind of expression and do this but then as a model for the AR experience no one actually thought to tell the person to act a certain way or that's how it was in my group	no participation in scene
my scene leaned towards such traditional because we already had a real-life prop which was the table and chairs. So we just added AR elements into reality. So it's more leaning towards traditional.	Reflective of Physical Environment, active-adaptive, optical scenography
And like can't the world [unclear 0:13:16] because if it's cam and camera but what I looked through the phone it actually felt really like quickly and one of the biggest emotions I felt like oh there's a lot of things going on here and then when I kind of looked away from it I felt like it was just like going like... I think it was like for the first time I felt I went with reality all the stuff going on actually looked like it belongs in the real world.	Augmented Reality, Successful Expression, AR affordance, generative exploration, optical scenography, passive-adaptive, immersive
So I put all those activities all those stuff going on. So when I took it out it felt kind of empty. So I think that was a really interesting emotion I felt.	AR affordance, Augmented reality, subject of gaze, immersive, generative exploration, optical scenography
Personally I thought it was pretty cool. Despite some of the technical difficulties um I think like if those weren't in the way it would have been a much smoother experience but I really enjoyed being able to work with others and like the same reality space and to kind of like add onto the idea of like “Hey! I'm gonna put some props on you” and then switch around and “Hey, you put some props on me again” and then we were able to like collaborate like effectively together. It's kind of like... it's kind of like the Google Docs but in like 3d space. That's something I haven't really played with before. So I think the concept is really good just the execution what the technical difficulties could have been better.	subject of gaze, participation in scene, Successful Expression, Good usability, optical scenography, active-adaptive, immersive
I think it definitely like for me it boosted my creativity and I think that of my other team members as well because allowed us to you know like picture the scene more effectively whether it's like our scene was like you know about food.	Embedded Values, participation in scene
let's put like this desk prop and then have them sit on physical chairs but then have the augmented desk there and just you know be able to you know draw food on the table and just to represent “Hey, this is like a dinner table”. I think like it definitely gave us the tools we needed just to be more creative rather than just sculpting an individual person trying to create a scene. I think that was much harder at least for me.	Successful Expression, active-adaptive, immersive, optical scenography
So yeah, I guess when we picked the ‘I feel when safe card’ we all you know ask me and greed on the food one. So with like the food theme in mind what we did what we had two phones so we just try to search for like anything that was really into food and we found like hey we found tables, chairs and then we can draw you know food and be able to like accurately like depict that in augmented reality. So, yeah-	Successful Expression, Reflective of existing material, AR affordance
I have to say more utility I guess.	Good usability, active-adaptive

draw, place props, move things around is needed work togethe	active-adaptive, finger tip rays, optical scenography
think it was pretty cool for some of the exercises we did like you know the binary thing we did where we moved to one side room to the other, the ability to like use AR with that, to see like you know different people's options and then see like- Oh hey, like you know not every everyone like went from one side to the other and you're able to see all the lines we drew in augmented reality. I thought that was really cool and that made me a little bit more interested and I feel when I'm safe process. So yeah I think it was a great like you know tool that used with it.	Successful Expression, Good usability, AR affordance
ink it was definitely. Yeah I would say augmented reality definitely helped with the visual representation of it and I guess like if it worked out in the end and we could have saw the full scene, we think it would you know we people like a laugh on their face. Definitely I think yeah, it would have been good.	Reflective of existing material
when I was just sculpting a person normally or trying to create a scene without any augmented technologies we had to think a little bit more critically to how the audience would I guess like view the scene or react to it. Good to make sure the scene wasn't like ambiguous or like it just looked right from the right angle. Whereas in I guess with AR, you could depict things a lot or better. Food for example, like you want to draw apple or pizza that's more easily like depicted through AR drawings rather than trying to like imitating eating an apple and like with just like the person.	Successful Expression, Reflective of existing material, finger tip rays, active-adaptive
really like the concept of working together in the same augmented space, being able to see what other people have created as long as they each got a phone of their own with the app installed. I think like definitely the real-time collaboration editing is something that I think a lot of people will enjoy using like you could even look at Google Docs, you could look at some other like real-time editors um and I think like that adds a lot to the creative experience.	AR affordance, participation in scene, Successful Expression, active-adaptive
maybe some take some things that might have taken away but mainly just like technical difficulties. Sometimes like the things we drew weren't exactly in the same place as other people who viewed it. So that could mess up like you know some of our orientation of props and then just like some of the weird technical difficulties like taking a while to join a reality, not wasting a bit of time and then like suddenly objects disappearing I guess but other than that I think it really created like a unique experience being able to work together to build the scene. So yeah-	Bad usability, active-adaptive, optical scenography
Um, I think the binary one really... was really cool just be able to see everyone's choices and you know I thought like some people would be more inclined to like stay in one spot versus another but in the end like everyone had lines all over. It was cool to just to see like you know everyone's lines like more like completely in the back, just looking at everyone's choices we made. I thought that was really cool.	Embedded Values, participation in scene, Shared Gaze, generative exploration, finger tip rays, active-adaptive, immersive
I would say it's a mix of both. I think like augmented reality gave you the visual representation of everyone's choices but fit in the physical world you can also say “Hey, like this person is choosing the same choices as I am. They might have more similar interests with me”. So you kind of notice it in both worlds.	Augmented reality, Physical Reality, Shared Gaze, participation in scene
So my initial thought was that I felt a little bit secluded because I didn't have the device but the more I thought about it, it was actually the more the feeling of you know like someone who's say modeling on a table and like you have like other students painting you. Like you might not be able to see what they're painting but you know that you're they're modeling so that they can get their creative juices flowing. And so that was good that's kind of what I was	subject of gaze, passive-adaptive, immersive

feeling most of the time. Just being that model, sitting there on the table, doing a specific pose for other people to draw on.	
I had no idea what to do other than sit	Shared Gaze, no participation in scene, subject of gaze
I had no idea what to do other than sit, even though objects were next to me.	passive-adaptive, immersive
even though objects were next to me.	Augmented reality
It allowed us to use objects that we do not physically have, like cups or food	AR affordance, Augmented Reality, Successful Expression, optical scenography
The physical space determined the actions since we had AR people sitting in chairs.	Successful Expression, Reflective of Physical Environment
The alignment of characters when we moved too much or too quickly from a particular spot	Failed Expression
We connected the theme of the card with tools in the app	AR affordance, Successful Expression, Good usability, active-adaptive, expansive
The card was about eating with friends so we made a scene with food and AR people	Reflective of existing material
Since it was the best way to create objects and materials that we don't have	AR affordance
The prop is instantaneous and we could shape it how we want.	AR affordance, Successful Expression, active-adaptive
e picked an area with chairs so we thought we could utilize them for physical people as well as AR people.	Reflective of Physical Environment, expansive, active-adaptive
We thought we could each add a new component to the scene as we felt was necessary.	active-adaptive
We wanted to make sure to fully utilize the table.	Reflective of Physical Environment
Having another person sitting next to the person and actually talking	Reflective of existing material
Having another person sitting next to the person and actually talking.	immersive

It made it seem easy to create an environment that makes someone feel safe	AR affordance, Successful Expression, Good usability
Learned that people have different methods of creating safe spaces and those can be represented through AR	Myth of Objective Inscription, Good usability, Successful Expression
So I thought itallowed me to have more creative freedominstead of just like sculpting theperson because if someone was to see theperson sculpted, they can interpret itdifferent ways but if I wanted them tosee it a certain way, the augmentedreality provided context.	participation in scene, Good usability, active-adaptive, immersive, optical scenography
It painted like a more clearpicture as to what I was trying to… likeportray in the scene.	Successful Expression, Reflective of existing material, active-adaptive, immersive, Great Quotes
Because they're-they're likethe objects I can use were kind oflimited, like there wasn't every singleobject out there in the world that I couldput into the reality and I think thedrawing part would have worked if Icould also like draw and move what Ihad drawn as in like I could create anddraw an actual 3d object and then usethat as an object instead of a pre-madeone or something.	active-adaptive, optical scenography, finger tip rays, Bad usability, Failed Expression
so I had to use what was there andthey were like good foundations for justthe overall idea of what we were tryingto portray. I think that… even if itdidn't have all the options available, itwas still able to get the point across.	Successful Expression, Reflective of existing material, active-adaptive
Sofora idea, I kind of just broke it downinto like the components and then Istarted looking through the objects tosee if there was anything that wasrelated to either the idea or a specificthing that I thought would be good forthe scene.	expansive, active-adaptive, optical scenography
I tried toeither use an object I could maybetransform into something that might represents what I wanted or I just usedthe drawing tool and drew it out	Good usability, active-adaptive, optical scenography, finger tip rays
kay. I think the idea offeeling safe in AR allows us to like-like build not only like physical placeswhere people can feel safe but also likemental representation through differentobjects and like it's just drawing ormaybe even like the portals idea.	Good usability, Successful Expression, AR affordance, Reflective of existing material
he cards andthe stories like there are the thingsthat you, like give context us for likewhat kinds of things people feel safe oraround or where they feel safe.So thenin the AR space, you can just translatelike their thoughts and feelings into ascene or like the space for them toactually go into and feel safe	Reflective of existing material

Ifeel like without the AR, it was a lot ofjust-- I had to imagine in my head my ownrepresentation of like safety withoutany like context or just like backgroundon what exactly I should be thinking about versus what the AR… it kind of-- like the process that wentthrough today, itkind of made me realize like when we wereworking together with other people, liketheir ideas kind of-- you can get an ideabased off of what they're doing, like howto interpret the message and also-- like Ijust thought it's now but before, like using AR, they can make their ownsafe space in AR because they're theones who know exactly like what makesthem feel safe versus us making thespace for them to go into.	Embedded Values, participation in scene, Shared Gaze
I feel like whatwe do is more of like our own-- either ourown personal view on what was on thecard or just a general tape on it. Because we-- it's kind of hard to reallyunpack what they're saying when theymean like if when they're eating, becausethey-- when they write that, they have somethingin mind like a certain food or likesomething associated with eating that wedon't really know because they didn'twrite it down. So I feel like all we can reallydo is like a general depiction of law.	Failed Expression, Not reflective
I think the traditional method allowedmore room for interpretation fordifferent people but with the AR, we kindof narrowed it down to like a specificscene or like instance of what waswritten down and I think depending onlike how we want to use it wouldddetermine which one is better.	Reflective of existing material
Yeah. I think it was more making a spacearound the person that reflected the 'I feel safe when' rather than showing moreemotion in the actual person being portrai	Reflective of culture, Reflective of existing material, immersive, passive-adaptive, optical scenography
Yeah. Ithink using the AR, you had me even more-- we thought a lot more into it, what to put into those scenes.	Reflective of existing material
think the last one was more involved, like AR, we… it wasn't just us aloneand just our ideas but it was like amixture of the entire group.And, but alsothe first one, I thought was reallyinteresting because the lines couldchange depending on which side you choseto make a different choice because forthe most part, I think like I ended upmoving only once because all of theother choices that I didn't choose were onthe opposite side.So I think… it's kindof different if you were to do that thatway because there's a lot of thing, likethere's other factors that go into thechoices, and like the line drawing. But I think the last activity wasthe mostlike complex.	participation in scene, AR affordance, active-adaptive, immersive, expansive, generative exploration, finger tip rays, optical scenography
So it required more thinking because we had to think-- okay what-what actually makes up themessage on the 'I feel safe when' card, likehow can I group these into differentcategories and then from thosecategories, what objects go into thatcategory and how can I place it into theAR environment so that it's telling astory ofthe person in there or the person reviewingthe reality to convey the messag	Successful Expression, AR affordance, expansive, active-adaptive
ay.I think they were sort of in the middle because we were using thecommon day, I guess, everyday objects sort of like food or like a bed but the ARpart it stood out more because we wereall standing so, of course, we can't lay, like turn the person inside of the ARenvironment so that they're laying down. So we had to actually make it look likethey're on the bed but standing.	Augmented reality
So when I was in being sculpted, I was reallyexcited to like get to see what they were doing because when I'm standing, all I can do is like imagine what theycould be doing or imagine like what Iwould draw or put into the reality.	subject of gaze

hink, like I would justdo something and then they would take what I did and enhance it in that AR, but I couldn't see what they weredoing so I sort of just-just went withthe flow of what I could do and thenthey would like tell me or ask me things. And I guess that [Inaudible 20:54] information from them	subject of gaze, passive-adaptive

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